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SIMPLIFIED INTERNAL FIXATION OF INLAY AND ONLAY BONE GRAFTS

CHAIRMAN'S ADDRESS

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Reviewing indications in general for bone graft surgery of the long bones would be merely repetition of what is already of record in many excellent articles on the subject and available in recent textbooks dealing with the management of fractures.

Good surgeons have already worked out and proved the efficiency of various types of inlay and onlay bone grafts. The physiologic indications and the mechanical application of either type of graft are matters of judgment for the individual operator. Various methods of transfixing a bone graft or bone grafts have been practiced and published. This feature of the operation has been a rather individual thing with surgeons and may still be going through some transition.

Preparation of the host-fragments of bone for the reception of a graft in an ununited fracture is often a tedious and time-consuming dissection. Obtaining a

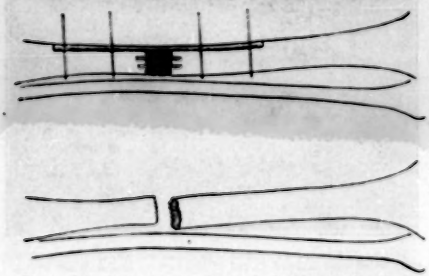

Fig. 1.—Inlay bone graft securely transfixed with removable Kirschner wire nails.

mass of bone for the graft (which is expected to be something of a splint as well as a graft) is not usually difficult when good instruments are available. However much surgical skill may have been expended in these first two steps, proportionately more is indicated to place the bone graft in proper position effectively and efficiently and maintain it there. In the type of operation in which an inlay bone graft is indicated and used, several methods of fixation have been advocated. Some of these are autogenous dowel pegs, beef-bone pegs and drill holes through the cortex with retaining sutures of wire, catgut or kangaroo tendon. All are moderately tedious and time consuming and some require rather extraordinary skill.

It is expected (though not always true) that when an inlay graft is used the mass of bone will wedge firmly into a groove prepared for its reception. Of course, the graft should fit sufficiently well to prevent its falling into the medulla, but usually some provision must

Fig. 2.—Old ununited fracture of the tibia with inlay bone graft transfixed by means of removable wire nails. Nails removed at end of nine weeks. Graft uniting and bone consolidating at site of fracture.

be made for holding the inlay graft securely to its host if proper surgical requirements are met. The simpler this can be done in keeping with efficiency, the better.

It has been universally conceded that the massive onlay graft is the most physiologic bone graft for its indications. These indications are most frequently encountered in nonunion of the bones of the upper extremity. The operation has been largely taught and popularized in this country by the orthopedic service of the Mayo Clinic and the Campbell Clinic. On seeing my first onlay bone graft operation I was more impressed, though, by the magnitude of the procedure than with its physiologic value. The massive onlay bone graft operation does call for fair skill and its exactions have been largely due to the fact that so much accuracy was required in transfixing the graft, particularly if autogenous bone pegs or bone screws were used. Because the operation of onlay bone grafting appeared so formidable as usually done or described, I had attempted it very limitedly and with misgivings until there occurred to me a quicker and simpler method of transfixing the graft.

With the popularization of the use of metal fixation in bone surgery, particularly the small caliber pins, I first transfixed an inlay bone graft with two removable Kirschner wire nails. This procedure was repeated and

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it was found that the pins or nails could be inserted in the briefest possible time and accomplish thorough fixation.

Later I began securing massive onlay bone grafts with removable Kirschner wire nails and found this operation much to recommend them. At the same time the operations are a bit complicated, particularly when two operating teams are required to function at the same time. Limitation in personnel may sometimes contribute to simplicity in surgery.

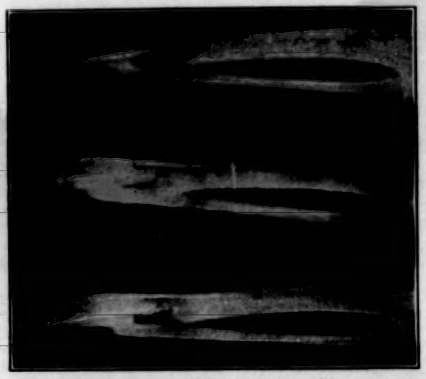

Fig. 3.—Compound fracture followed by osteomyelitis, sequestration and nonunion. Inlay graft secured by metal nails. Removed at end of ten weeks. Graft taking and fracture defect filling in.

Since I first began using Kirschner wire nails for fixation of bone grafts, the classic work of Venable and Stuck on a nonelectrolytic metal for use in bone surgery has come out. Their work would lead one to feel that vitallium metals may be buried in the tissues with impunity. Either from lack of experience with vitallium screws in bone graft surgery or from a surgical heritage of fear of the use of buried metals of any kind in the tissues, I am still securing grafts with removable metal nails.

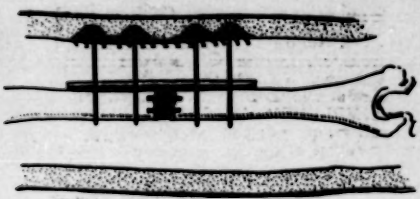

Fig. 5.—Onlay graft in position and nails projecting through the suture line, in position to be removed later.

When a bone graft is transfixed with metal nails, the nails should be driven through the graft and through the cortex on the opposite side of the shaft. To determine the depth to which the nail is going there should be a set-screw gage attached to the wire or nail at an estimated level. This is the simplest method of measurement. A bone holding forceps, such as illustrated, can be used to control the depth the nail travels. It is not necessary to stagger the nails, though there is no objection to it. They hold securely when placed parallel. The nails should come out directly through the center of the incision if possible. If in closing the skin there is puckering, a transverse slit should be made to relieve it; otherwise superficial healing may be interfered with. Where dissection has been made in scar and granulation

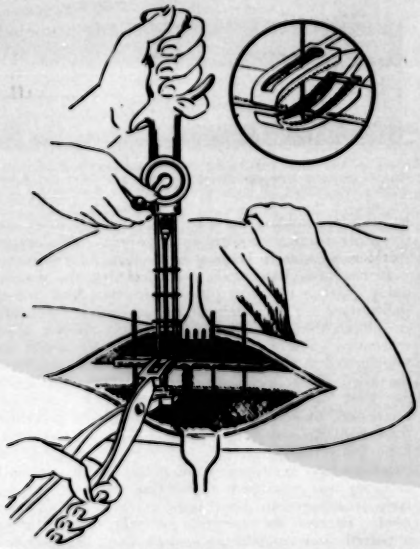

Fig. 4.—Fixation of a massive onlay bone graft by means of removable Kirschner wire nails.

Fig. 6.—Old fracture of radius with nonunion. Onlay graft fixed with nails which were removed at end of ten weeks. Radius firmly united.

simplified, more quickly done, and the physiologic and functional results satisfactory.

No doubt the autogenous bone pegs or screws, and even the same devices made of beef or sheep bone, have

tissue about the site of a bone defect there is necessarily excessive serous ooze which sometimes the tissues are taxed to absorb. Removable pins or nails make ideal drains for this deeply located, excess hemorrhage or secretion and thereby aid wound healing.

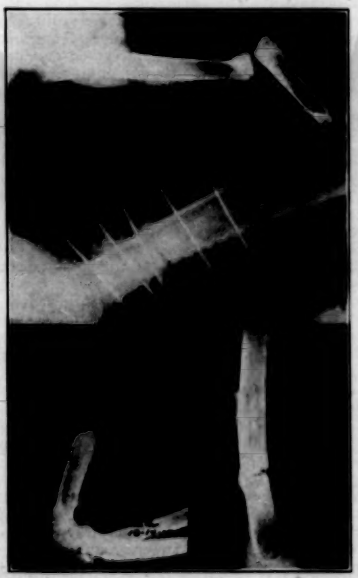

Fig. 7.—Ununited fracture of the humerus with pseudarthrosis. Alinement corrected and massive onlay graft secured with Kirschner wire nails. The elbow joint was disorganized and the limited motion threw unusual stress on the fracture line. Nails were removed from a perfectly healthy wound at the end of sixteen weeks. After a reasonable period of protection the bone consolidated firmly at the site of the fracture.

When transfixing a bone graft as outlined here one will find closing the wound a little tedious at first, as the suture material has to be guided between and about

Fig. 8.—Comminuted fracture of the humerus with nonunion in the transverse break at eight months. Massive onlay bone graft was used and a light arm cast worn. The nails were removed at the end of twelve weeks. There was perfect wound healing and firm bony union.

the nails. This, though, is not a serious objection. The operation is simplified in this connection by first clipping the wires an estimated centimeter above the skin level. While removable wire nails constitute excellent internal fixation, the limb under treatment should be skilfully immobilized by external fixation, usually a plaster of paris cast.

The pins are left in place until by x-ray and clinical examination the graft is found united to the host bone. In my experience the longest period pins have stayed in the tissues before withdrawal has been sixteen weeks. The average time has been from ten to twelve weeks. External protection of the graft may be continued longer. The pins are easily and painlessly removed by rotating and extracting with a drill chuck.

I have now had experience with removable metal fixation of bone grafts for more than two years and in a fair series of cases and feel that the grafts have been securely fixed and their supporting strength less disturbed by small removable nails than by more gross fixation material. In the procedure no foreign material is left in the tissues. In one of the cases the graft was absorbed, owing apparently to some metabolic defect in the tissues. All others have had uncomplicated convalescence.

TREATMENT OF THE ANXIETY STATES

WITH SPECIAL ATTENTION TO CERTAIN PHYSIOLOGIC MANIFESTATIONS

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Economic and social upheavals in the era since the World War have undoubtedly increased the number of patients who have anxiety states with symptoms that simulate those of serious organic diseases. At least one third of the practice of most physicians consists of such patients. The average physician has little interest in the problems that this group presents and is likely to label them neurosis, neurasthenia, anxiety neurosis or anxiety hysteria and either to neglect the patient or to treat him in the easiest manner possible. Since his treatment is often unsatisfactory, the patient shops around from doctor to doctor until, if he is fortunate, he finds one who will pay enough attention to his symptoms to recognize the physiologic causes as well as the fundamental psychologic factors. Perhaps the increasing popularity of cults has depended largely on the fact that their practitioners at least do something for their followers even though the treatment is not rational. We feel that the term that best describes the nervous phenomena in these persons is "anxiety state" and that the physiologic syndromes associated with anxiety states should be determined accurately in order to complete the diagnosis.

Any situation or group of circumstances, whether real or fanciful, threatening the emotional or social organization of the individual may lead to anxious reactions. Normal anxiety arises from a recognized exciting cause, such as the sensations that any individual will experience after a narrow escape from a potentially serious automobile accident. Morbid anxiety, on the other

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hand, is attached to some idea not related by the patient to its original exciting cause. An illustration of morbid anxiety is shown by the patient who feels that his symptoms have caused him to be inefficient in his work so that he is unable to support the girl he wants to marry, whereas the real cause of his symptoms is a subconscious desire to avoid the marriage—in other words, the patient has reversed the true situation. Of course, these ideas concerning anxiety are not original and are well stated in Henderson and Gillespie's textbook of psychiatry.[1] Just how completely normal and morbid anxiety should be distinguished is difficult to say. However, the group of patients that we wish to discuss fall into the classification of morbid anxiety. Some writers, such as Stekel,[2] have used the term "fear" to cover what we have termed "normal anxiety," and "anxiety" to mean what we have called "morbid anxiety."

Cannon [3] has demonstrated some of the physiologic responses to pain, fear, rage and hunger in animals.

Many writers [4] in recent years have pointed out physiologic mechanisms producing the symptoms in anxiety states in man. Some of these physiologic manifestations are well understood; others have not been studied completely or are insoluble in our present state of knowledge. One certain point is that overstimulation of the central nervous system (specifically the cerebral cortex) results in a spilling over of impulses into the autonomic nervous system and thus causes the syndromes outlined in the simple schema in table 1. While this schema is not complete, it gives most of the usual effects of stimulation of the autonomic nervous system.

TABLE 1.—*Effects of Stimulation of the Central Nervous System*

1. Direct nervous effects, through	
(a) sympathetic:	(b) parasympathetic:
(1) rapid heart rate	(1) blushing
(2) increased blood pressure	
2. Hyperadrenism (perhaps accentuated by direct sympathetic stimulation)	
3. Spasm of the gastrointestinal tract, through	
(a) sympathetic:	(b) parasympathetic:
(1) cardiospasm	(1) spastic colon
(2) pylorospasm	
4. Hyperventilation Probably resulting primarily from sympathetic stimulation (symptoms caused by respiratory alkalosis)	

In addition to the syndromes outlined there are hysterical phenomena (the mechanism of which is not even suspected) with such manifestations as amblyopia, anesthesias and paralyses. One might also include the migrainous type of headache as one of the physiologic effects which is not yet understood but which may be due to vascular constriction in areas of the brain. Two or more of these syndromes, representing overactivity of both the sympathetic and the parasympathetic nervous system, may occur coincidentally in one person, a fact that lends weight to the theory of the central origin of overstimulation. The central nervous system connections of the autonomic nervous system are now well recognized.[5]

The two syndromes that lend themselves most easily to reproduction are the hyperventilation syndrome and hyperadrenalism. The hyperventilation syndrome can be reproduced by having the patient overventilate until his symptoms occur and then continue to overbreathe air to which from 2 to 5 per cent carbon dioxide has been added. (A tank of the gas mixture connected to the usual anesthetic bag and mask may be used.) The carbon dioxide mixture relieves the symptoms within about half a minute. The accompanying illustration shows the apparatus used at the University of California Hospital. The effects of hyperadrenism can be precipitated by the intramuscular injection of from 0.2 to 0.3 cc. of a 1:1,000 solution of epinephrine hydrochloride. The effects last only a short time, so that epinephrine may be given safely unless the patient has coincident cardiovascular disease. A similar method of approach may be used in cases of parasympathetic overactivity.[6] The physician should explain in simple, nontechnical language the physiologic changes the patient undergoes as his symptoms develop. If possible, this should be done soon after these therapeutic tests so that the patient remembers the exact sequence of events.

As soon as the patient realizes that the doctor understands the immediate cause of his difficulties, he is much more amenable to procedures directed toward uncovering the cause of his anxiety. Experience has shown that symptomatic treatment without an attempt to relieve the maladjustments that are responsible for the excessive cortical stimulation is unsatisfactory for both patient and physician. These maladjustments frequently can be recognized and corrected by the general practitioner or internist. A larger group, including the patients who shop around from physician to physician, have deep-seated conflicts. For these the help of a psychiatrist who is interested in anxiety states as well as in the major psychoses is required.

In the psychiatric approach, the patient should be considered as a person who is ill physically as well as emotionally. The rapport or positive transference to the person of the physician is essential in the early phase of any modern psychiatric treatment. The advantage of recognition by the physician of the exact physiologic cause of the symptoms in any patient lies in the fact that the physiologic mechanism can be proved by reproduction of the symptoms and the patient's confidence thus gained. There is then no necessity of telling the patient that he is "just nervous." The doctor must realize that such symptoms may be far more uncomfortable than those of many serious organic diseases. Unfortunately a certain number of persons who have their physical symptoms relieved will consider themselves as cured and hence will see no reason for discovering the psychologic factors in their illness. The initial resistance of such a patient, which unconsciously has thwarted the psychologic approach, is then reinforced by the conclusion on the part of the patient that the original cause of his trouble must have been physical since he had been relieved with medicines.

The basis of all psychiatric investigation is a good history, which should include, besides the usual factual

1. Henderson, D. K., and Gillespie, R. D.: A Text-Book of Psychiatry, ed. 2, New York, Oxford University Press, 1930, pp. 416-417.
2. Stekel, W.: Conditions of Nervous Anxiety and Their Treatment, translated by Rosalie Gabler, New York, Dodd, Mead & Co., 1923.
3. Cannon, W. B.: Bodily Changes in Pain, Hunger, Fear and Rage, New York, D. Appleton & Co., 1915 and 1929.
4. Whittkower, E.: J. Ment. Sc. **80**:692, 1934; monograph sect., **81**:533, 1935. Kerr, W. J.; Dalton, J. W., and Gliebe, P. A.: Some Physical Phenomena Associated with the Anxiety States and Their Relation to Hyperventilation, Ann. Int. Med. **11**:961 (Dec.) 1937. Kerr, W. J.; Gliebe, P. A., and Dalton, J. W.: Physical Phenomena Associated with Anxiety States: The Hyperventilation Syndrome, California & West. Med. **48**:12 (Jan.) 1938. Kerr, W. J.: Physical Phenomena Associated with Anxiety States: The Hyperventilation Syndrome, Proc. Inter-State Postgraduate M. Assembly of North America, Oct. 18-22, 1937. Soley and Shock.[5]
5. Fulton, J. F.: Some Functions of the Cerebral Cortex, J. Michigan M. Soc. **33**:175 (April), 235 (May) 1934.
6. Lindemann, Erich, and Finesinger, Jacob E.: The Effect of Adrenalin and Mecholyl in States of Anxiety in Psychoneurotic Patients, Am. J. Psychiat. **95**:353 (Sept.) 1938. Sparks.[7]

material, his loves, ambitions and frustrations. From the history, emotional responses and the content and interpretation of dreams, one is led to the cause of the psychologic maladjustment. When the patient recognizes the relationship of his conflicts to his physical symptoms, he usually recovers. It must be admitted, however, that there will always be patients who are "psychopathically and protoplasmically" inferior and therefore not amenable to psychiatric treatment, who must be treated symptomatically as their various complaints are brought to the doctor.

During the early stages of treatment, most patients with anxiety states require drugs that depress the central nervous system. The bromides, phenobarbital and isoamylethylbarbituric acid (amytal) are particularly effective because they depress the cerebral cortex.[7] Dosages range from 1 to 1.5 Gm. of sodium bromide three times a day, from 0.015 to 0.045 Gm. of phenobarbital three times a day and from 0.045 to 0.06 Gm. of amytal three times a day. Other barbiturates act mainly on the hypothalamic region; thus, while they may decrease stimulation of the autonomic nervous system and relieve certain peripheral symptoms, they do not relieve so effectively those symptoms of anxiety directly referable to the cerebral cortex. It should be remembered that anxious persons require larger doses of these drugs for cortical depression than do normal individuals. Dr. Chauncey D. Leake has illustrated this principle excellently in a diagram which he uses for teaching purposes in his course in pharmacology at the University of California. This diagram (table *2*) emphasizes the fact that, when any central nervous system depressant is given, a larger dose is necessary to produce depression from the excited state than from the normal state.

Other central nervous system depressants, such as chloral hydrate, may be substituted in order to circumvent the danger of chronic toxicity or habit formation. Some writers [8] feel that the addition of one of the coal tar derivatives increases the effectiveness of the barbiturates. It should be mentioned here that the advertised advantages of many of the proprietary soporifics do not justify their excessive cost.[9]

The soporifics play a double role in the treatment of the anxiety states. They prevent the overflow of impulses into the autonomic nervous system and raise the sensory threshold so that, even if there is some autonomic overactivity, the resulting sensations cause less discomfort. This is important since at the present time there is, for example, no method by which one can with safety paralyze the sympathetic ganglions (nicotine-like action) or paralyze the myoneural junctions of the sympathetics. There is no other method of decreasing sympathetic activity except the very radical one of denervation of the adrenal glands. In our opinion this type of operation disregards the etiology of the adrenal hyperfunction in anxiety states. In hyperadrenism, then, one must resort to relief of anxiety and to central sedation.

Pylorospasm and cardiospasm, though they also may result from sympathicotonia, require specific treatment. It seems to us that here, again, the origin is more frequently anxiety states than is commonly recognized and that the dietary measures usually prescribed are inadequate. The use of the atropine series is rational only when the chief discomfort arises in hyperperistalsis proximal to the spastic sphincter. In the sphincters themselves the paralyzing of the parasympathetic nerve endings accentuates the sympathetic effects of constriction. One possible reason for administering the atropine group is that, with parasympathetic paralysis, loss of the opposing action to the sympathetics may break a vicious cycle. However, if one may cite an analogy with skeletal muscle, the loss of function of groups of muscles which have opposing actions to others (in a state of "spastic paralysis") causes contractures of the latter groups. Drugs such as glyceryl trinitrate and other nitrites which relax smooth muscle may be prescribed.

On the other hand, the atropine series is especially useful in the treatment of spastic colon, because these drugs paralyze parasympathetic nerve endings. A new

Apparatus used at University of California Hospital.

and promising type of drug is trasentin (diphenylethyldimethylaminoethanol hydrochloride). The usual dietary measures are not directed against the fundamental pathologic physiology. Spastic colon rarely is found in an individual having normal psychologic adjustments; therefore, psychiatric measures combined with symptomatic treatment will lead most directly to successful results.

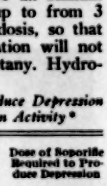
The work of Gordon Alles and others [10] is paving the way to advances in the treatment of patients with hyperfunctioning autonomic nervous systems. For example, at the present time there are few drugs that exert a selective action on any part of the autonomic nervous system. Sufficient atropine to relax a spastic colon may cause uncomfortable dryness of the mouth and perhaps blurring of vision. The ideal drug for parasympathetic inhibition of the colon acts mainly on the colon without producing other side-reactions. Dr. Alles already has been able to prepare phenethylamines with which, in suitable dosages, central stimulation is minimal whereas rises in blood pressure are great. Each

7. Sparks, M. Irving: Experimental Studies of Epileptiform Convulsions, Arch. internat. de pharmacod. **33**: 460, 1927.
8. Misch, Walter: The Syndrome of Neurotic Anxiety: The Somatic and Psychic Components of Its Genesis and Therapy, J. Ment. Sc. **81**: 389, 1935.
9. Grabfield, G. P.: Observations on Efficiency of Commonly Used Hypnotics, J. A. M. A. **96**: 1865-1866 (May 30) 1931.
10. Alles, G. A., and Knoefel, P. K.: Comparative Physiological Actions of the Phenethylamines and of the Betahydroxyphenethylamines, Univ. of California Pub. in Pharm. **1**: 101-118 (No. 9) 1938.

step in the development of such drugs teaches us more about chemical constitution in relation to physiologic action, so that eventually we may be able to synthesize drugs that have selective actions on certain autonomic functions. It may be stated here that the inhibiting drugs are far more important than the stimulating ones, but unfortunately the latter are much more thoroughly understood.

In hyperventilation syndrome the benefits of rational therapy are realized better than in any of the other syndromes of the group we are discussing. The patient can be taught to breathe abdominally. Although the respiratory rate is increased by this measure, the total ventilation with abdominal breathing is far less than it would be either with chest breathing or with chest and abdominal breathing combined. Sedatives may be prescribed to raise the patient's threshold to all stimuli. Ammonium chloride in divided doses up to from 3 to 6 Gm. daily tends to produce an acidosis, so that even the original degree of hyperventilation will not shift the p_H to the point of production of tetany. Hydrochloric acid and acidifying diets are helpful. Finally, removal of the cause of anxiety by the psychiatrist completes the treatment. Recent work at the University of California indicates that effort syndrome [11] is really caused by hyperventilation and should be handled therapeutically as outlined for the treatment of the hyperventilation syndrome.

TABLE 2.—*Dose of Soporific Necessary to Produce Depression in Various States of Central Nervous System Activity* *

Excitement:	Faster reaction time than normal	Increased muscle tone, respiration, pulse rate, and so on	Dose of Soporific Required to Produce Depression
Normal:	Average reflex reaction time	Average muscle tone, respiration, pulse rate, and so on	
Depression:	Slowed reaction time	Decreased muscle tone, respiration, pulse rate, and so on	
Delirium:	Uncoordinated reflex response	Variable muscle tone, respiration, pulse rate, and so on	
Anesthesia:	No reflex response	Markedly decreased muscle tone, with respiration and pulse rate as in deep sleep, and so on	
Coma:	.....	Loss of muscle tone, very slow respiration, and so on	

* From lecture notes of Dr. Chauncey D. Leake.

A warning should be given concerning the diagnosis of the anxiety states. Whenever there is possibility of the existence of any organic disease, thorough studies of the patient should be made. While most patients with cancerophobia do not have carcinomas, there is always the possibility that their fears are based on fact. Likewise in effort syndrome, valvular or myocardial damage should be ruled out by electrocardiograms and chest films together with careful physical examination. In other words, the burden of proof is on the doctor who states that no organic disease is present.

SUMMARY

A large proportion of all patients seen by doctors have anxiety states. In treatment, both symptomatic and psychiatric measures should be used. The recognition of the physiologic factors producing the symptoms in this group of patients leads to rational symptomatic treatment as well as greater ease in the psychiatric treatment of the underlying causes of anxiety.

11. Soley, M. H., and Shock, N. W.: The Etiology of Effort Syndrome, Am. J. M. Sc. **196**: 840 (Dec.) 1938.

ABSTRACT OF DISCUSSION

DR. EDWARD G. BILLINGS, Denver: At the University of Colorado School of Medicine and Hospitals, more than one half of anxious patients have been misdiagnosed as having hyperthyroidism, peptic ulcer and other organogenic disorders. They first become tense when the issues of life begin to diminish their margin of security. This usually occurs not because they are inferior but more as a result of the way they understand and run the business of living. Then, when tense, any type of experience, usually one either actually or potentially emotionally charged, may precipitate an attack of anxiety. The first step in therapy is to elicit the facts of the case by following a common sense and sympathetic procedure of history taking and examination of the mental status. A physical examination should be done in every case. About 20 per cent of these patients will probably present evidences of some somatic pathologic condition. Often these bodily disorders are but incidental to the psychiatric problem. It is of the utmost importance that such bodily disorders be evaluated for what they are in relationship to the total problem and to the total reaction, lest they act more or less as proverbial "red herrings" and distract the physician from the main issue at hand. I should like to reemphasize that we should not use solely the method of exclusion in arriving at a psychiatric diagnosis. It is too time consuming and too expensive both to the patient and to the physician. Barbital in small doses, from 32 to 64 mg. from once to three times a day, is in my experience more effective in reducing the psychobiologic tension than some of the other more fashionable drugs. Barbital in small doses reduces the tension without slowing the patient's thinking. If the anxious patient's thinking is slowed up he feels more insecure and therefore more anxious. Empirically I have found that extract of European hawthorne from 10 to 20 minims (0.6 to 0.12 cc.) three times a day also seems to be somewhat effective in diminishing the physiologic repercussions that occur in anxiety, particularly when they arise on the bases of an existing hypersympathicotonia. Regarding the hyperventilation syndrome that the authors outlined, I have found that very few anxious cases responded with tetany or marked alkalosis, at least on hyperventilation, unless the patient was very suggestible and unless a considerable amount of positive suggestion was utilized along with the hyperventilation. I should therefore like to ask the authors whether they feel that suggestion does play some role in the tetany-like syndromes that develop during the hyperventilation of some of these patients.

DR. FRED M. SMITH, Iowa City: The authors have discussed an extremely important type of case. It is very common and often presents a difficult problem in treatment. Many of these patients come to the physician because of some form of abdominal distress which may closely resemble almost any organic disease of the abdomen. The x-ray examination of the gastrointestinal tract frequently discloses a hypertonicity and increased peristalsis of the stomach, perhaps pylorospasm, occasionally cardiospasm, and commonly a spastic state of the colon. Furthermore, there is not infrequently a spasm of the sphincter of Oddi producing temporary interference with the emptying of the gallbladder. It is obvious that these patients should be carefully studied in order to rule out organic disease. After this is accomplished the situation should be carefully explained to the patient. In fact, this is one of the first steps in the treatment. Ordinarily a simple general diet will suffice. One should make certain that the dietary requirements are fulfilled. Relaxation and ample sleep are essential. Constipation is frequently present and should be controlled as far as possible by simple measures such as small amounts of liquid petrolatum supplemented by glycerin suppositories. Most of these patients can be handled by the sympathetic and understanding practitioner and in general the results are gratifying.

DR. WALTER FREEMAN, Washington, D. C.: In the history of these patients there is often to be found some precipitating factor. A disturbing circumstance like paroxysmal tachycardia will immediately focus the patient's attention on his heart or the sensation in some other part of the body. Fatigue and fright are two factors in inducing a state of anxiety. Fatigue has a peculiar way of increasing preoccupation with bodily functions. It lowers the threshold to sensibility and brings about overalertness. It produces a hypertonicity of smooth muscle, as has been mentioned. These two factors contribute to the exaggeration of the sensations that are being received by the patient from his own body. Now, then, we get into a vicious circle. Here is a patient already fatigued; he is alarmed; he is anxious. His body mechanisms are not working well. His attention becomes fixed on those visceral phenomena and further fatigue results. The careful taking of the history, the detailed examination, the reassurance, the reproduction of the symptoms and the explanation of their origin will reassure the patient. But sometimes the tension is so great that we are unable to overcome it. How do we break through this vicious circle? Of drugs that paralyze the sympathetic nervous system, alcohol is probably the finest (taken internally of course) but the effect does not last, and alcohol brings in its train certain other symptoms that are just as bad. Alcohol is not to be recommended, although it will temporarily abolish this hypersympathicotonia. Rest is important, but the patient says, "Doctor, when I lie down I feel as though I were going to jump out of my skin." Exercise is useful. I know individuals who can't rest at night unless they walk 5 miles a day. The inner tension has to find expression. Hysterics is a grand way but is not socially acceptable, just like alcohol. Patients quiet down after an attack of hysterics and convulsions. The great muscular activity possibly brings about therapeutic acidosis. Metrazol convulsions are sometimes useful in severe anxiety states. The shock method breaks through the vicious circle and produces relaxation and relief of tension. There is a physical basis for these anxiety states. Usually they can be adequately handled in general practice and physicians are encouraged to treat these patients. But there are some that do not react to the kindly, thoughtful, considerate and effective treatment of Dr. Kerr and his co-workers; these are the types that probably need even sterner measures.

DR. WILLIAM J. KERR, San Francisco: Hyperventilation occurs in most of these patients under our observation. If you ask them if they sigh, which they do under observation several times a minute, they may say "I don't know that I do, but my family or my friends say that I do." You will find this to be more or less generally true in this group, and the symptom is not limited to those with well organized psychopathic states. The most important thing in treatment is to demonstrate to the patient, by having her hyperventilate for half a minute or longer (sometimes it requires two or three minutes) it will reproduce almost exactly and repeatedly the symptoms which brings her to the doctor. Then you may explain exactly how the rest of the picture has been produced. I don't believe it is a matter of suggestion. Dr. Smith emphasized the gastrointestinal side. All of us see patients referred from doctors in all the special fields of medicine, including many who have been operated on for undiagnosed or misdiagnosed conditions. Many bear multiple scars on the abdomen; many have had repeated cystoscopies, when they had nothing but a spasm of the neck of the bladder. These people have not only physical scars but in my opinion also psychic scars, and some of them are not reversible. Many of these patients are finicky eaters; they can't take this and can't take that, and many have eliminated almost everything from their diet. But see one of them when he goes to the mountains or the seashore for his vacation. He will eat baked beans, hot baking powder biscuits and hot cakes. Then you will know that his condition is on a functional basis. The precipitating factors Dr. Freeman mentioned are important. Many of these people who have a low threshold, either inherited or acquired, probably inherited more often, will break under some ordinary stress or strain and from that time on will be in great trouble. Yet one may be able to correct the problem for them, give them understanding, give them help, and, until some other stress comes along, they are perfectly normal people. I believe we can say that we have "cured" many of these patients who otherwise would be hopeless wrecks for the rest of their lives. We have restored people to normal social life. Sometimes it may require the help of several physicians and members of the family working together. In our studies we have tried to apply all the knowledge that we could bring to bear from every field, that of the clinician, the physiologist, the psychiatrist and the chemist. I believe that we are all on the way to solving it. There is much that remains to be done.

DERMATITIS OF THE EAR

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Dermatitis of the ear has been a subject of difference of opinion between dermatologists and otologists with regard to causation and treatment. Thus many otologists would emphasize the factor of fungal infestation in the causation of dermatitis of the external ear whereas according to the dermatologist dermatitis involving the external portions of the ear and retroauricular region may result from many diverse factors.[1] It is obvious that there must be an empirical background for these divergent opinions, the probability being that the relatively simple and easily cured cases have remained in the hands of the otologist who first saw them while the refractory cases have been referred to the dermatologist.

It is not our purpose to comment on the obvious cases of contact dermatitis of the ears from sensitivity to nickel on spectacle bows, to fur pieces, to silk, to wool or to various medications used in treatment of the hair and scalp, including dyes and local applications to the ear canal, or to consider secondary involvement of the ear in the case of universal or partially generalized dermatitis including atopic (allergic) dermatitis. Various chronic dermatoses in which involvement of the external ear is common, such as lupus erythematosus or psoriasis, will not be discussed.

Ordinary dandruff (seborrhea sicca or seborrhea oleosa) occurs primarily in the scalp but may involve the ears, flexural surfaces and folds in the form of a seborrheic eczema (Unna)[2] that is, seborrheic dermatitis. Several authors recently have questioned whether many of these cases have not been cases of streptococcic dermatitis starting with involvement of the retro-auricular region and then showing patches of intertrigo elsewhere on the body.[3]

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From the Section on Otolaryngology and Rhinology (Dr. Williams), the Section on Dermatology and Syphilology (Dr. Montgomery), and the Division of Clinical Laboratories (Dr. Powell), the Mayo Clinic.

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LITERATURE

Recent investigations have indicated that streptococci are rarely to be found in normal skin even in the scalp or retro-auricular regions.[4] They also have indicated that the same is true to a lesser degree of staphylococci in contrast to micrococci and certain types of fungi which usually are regarded as being nonpathogens. Older investigations, such as those of Photinos,[5] who found streptococci present about the nose and in the retro-auricular region in 64 per cent of a series of cases, are difficult of evaluation, as most of the patients had either seborrhea or acne and thus could not be regarded as having normal skin.

The tendency to ascribe dermatitis of the ear to fungal infestation has recently been particularly emphasized in otologic literature. McBurney and Searcy [6] and Gill [7] stimulated interest in the fungi as etiologic agents in external otitis. Whalen [8] in 1938 stated that dermatitis of the ear could be healed in nine days by following his method of eradicating pathogenic fungi and could be prevented from recurring by the oral ingestion of potassium iodide for thirty days.

On the other hand, Greaves [9] in 1936 was unable to demonstrate fungus in seventy-five cases of otitis externa by smear, hanging drop or culture. He stated that the etiologic agent in otitis externa is doubtful. Staphylococci and streptococci were extremely rare, but all the cases showed the presence of a gram-negative, motile, pigment-producing bacillus of the pseudomonas or pyocyaneus group. He thought it probable that this organism was an accidental secondary invader in his cases. Sabouraud,[10] as far back as 1900, was inclined to attribute some of these lesions of the ear to the streptococcus. Mitchell [11] in 1937 in a well illustrated article found himself in complete accord with the observations of Sabouraud. He was able to demonstrate streptococci in the serum from fissures and in the squama-like crusts from the ear. By cultural methods especially adapted to the growing of the streptococcus he was able to obtain these organisms on culture. In investigations of dermatitides of the skin it has been impossible to fulfil Koch's postulates. In many cases the use of special cultural methods directed toward the demonstration of certain organisms might have prevented the recognition of other organisms present.

MATERIAL STUDIED

Thirty-four routine cases in which the patient came to the Department of Otolaryngology or of Dermatology of the Mayo Clinic with a complaint of dermatitis of the ear were studied by the otologist with especial reference to disease in the external auditory canal, by the dermatologist with reference to retro-auricular dermatitis, and for other manifestations of cutaneous disease in the scalp and elsewhere on the body, and by the bacteriologist in an attempt to isolate and to identify any bacteria or fungi present which might be an etiologic factor in producing the lesions.

CLINICAL DATA

We were unable to classify from the clinical characteristics alone the dermatoses present in our cases as belonging to a specific type of dermatitis. We saw no borderline cases between so-called seborrheic eczema and psoriasis which may involve the ear and the ear canal. More than 80 per cent of the patients were women. The following brief case histories are presented to illustrate the complexity of the problem:

REPORT OF CASES

Case 1.—A woman aged 52 gave the history of a chronic discharge of the right ear since childhood. She reported that since an acute exacerbation of the otitis a year previously she had had an itchy, scaling and weeping dermatitis involving the external right ear and the nose. A biopsy showed marked dilatation of the superficial vessels and absence of fat in the stratum corneum. On culture of the lesion, both Streptococcus haemolyticus and Staphylococcus aureus were found to be present. This patient had consulted several dermatologists during the year before admission to the clinic without relief of her symptoms.

Although she had not been conscious of a discharge from the ear for the past year, examination of the ear disclosed a fistula into the attic. A roentgenogram showed the presence of a large cholesteatoma in the right mastoid. A Bondy type of modified radical mastoidectomy was done with preservation of the matrix of the cholesteatoma. Convalescence was without incident and the dermatitis rapidly disappeared with routine postoperative treatment of the large cavity that necessarily resulted from the operation.

Case 2.—A woman aged 44 stated that, starting a year previously, a pruritic lichenoid dermatitis of the forearms and wrists gradually spread to involve the upper arms, the neck and finally the right ear, where it became localized. A subacute dermatitis involving the right ear canal and the rest of the external ear and extending slightly onto the neck below the ear was found. Treatment of the ear canal was instituted by cleansing and the use of phenylmercuric nitrate, of merthiolate and thymol mixture and of thymol iodide dusting powder. With the use of each of these drugs the lesion in the ear canal cleared up with amelioration of the dermatitis of the concha, but while still under treatment the dermatitis would again extend into the ear canal from the concha. The patient was found to have a questionable sensitivity to mercury but did as badly on thymol iodide as on the mercurials. With the use of wet dressings of aluminum acetate followed by crude coal tar the dermatitis rapidly cleared up over the whole of the external ear except the external auditory canal. With the disappearance of the dermatitis over the rest of the external ear, however, the lesions in the canal responded to simple cleansing. Culture from the lesions revealed the presence of Streptococcus viridans and Monilia parapsilosis. In this case there were factors of neurodermatitis and contact dermatitis, yet cultures were positive and the lesion healed under application of coal tar ointment.

Case 3.—A woman aged 28 complained that an earache, which she ascribed to a cold, had been present on the right for three days. On examination of the ear the skin of the right external auditory canal was found to be reddened and swollen and the ear drum and the canal medial to the isthmus were covered with a grayish white pseudomembrane. The pseudomembrane was removed and sent for culture, Aspergillus fumigatus being found. The ear canal was carefully cleaned and phenylmercuric nitrate dusting powder blown into the canal. The external auditory canal had resumed a normal appearance by the third day and treatment was discontinued. There has been no recurrence in two months.

4. MacKee, G. M.; Lewis, G. M.; Pinkerton, Elizabeth, and Hopper, Mary E.: Dandruff and Seborrhea: II. Flora of the Face, and Further Studies on the Flora of the Scalp, J. Invest. Dermat. **2**: 31-41 (Feb.) 1939. MacKee, G. M., and Lewis, G. M.: Dandruff and Seborrhea: I. Flora of "Normal" and Diseased Scalps, ibid. **1**: 131-139 (April) 1938. Downing, J. G.; Nye, R. N., and Cousins, S. M.: Investigation of the Fungous Flora of Apparently Normal Skins, Arch. Dermat. & Syph. **35**: 1087-1092 (June) 1937.

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6. McBurney, Ralph, and Searcy, H. B.: Otomycosis: Investigation of Effective Fungicidal Agents in Treatment, Ann. Otol., Rhin. & Laryng. **45**: 988-1008 (Dec.) 1936.

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8. Whalen, E. J.: Fungous Infections of the External Ear, J. A. M. A. **111**: 502-504 (Aug. 6) 1938.

9. Greaves, F. C.: Phenylmercuric Nitrate in the Treatment of Otitis Externa and of the Dermatophytoses, U. S. Nav. M. Bull. **34**: 527-532 (Oct.) 1936.

10. Sabouraud, Raymond: Folliculites, in Darier, J., and others: Nouvelle pratique dermatologique, Paris, Masson et Cie, 1936, vol. IV, pp. 167-213; L'eczema seborrheique de Unna, ibid., vol. VII, pp. 36-44.

11. Mitchell, J. H.: Streptococcic Dermatoses of the Ears, J. A. M. A. **108**: 361-366 (Jan. 30) 1937.

CASE 4.—A woman aged 45 stated that for the past six years she had been troubled with an itching dermatitis of both ears. Examination revealed an erythematous, moist, scaling dermatitis with crusting and fissuring, involving the entire external ear and postauricular fold on both sides with the exception of the external auditory canals (fig. 1). The lesion was thought to be typical of a streptococcic dermatitis, but on culture Staphylococcus aureus and a diphtheroid bacillus were found. A specimen taken for biopsy revealed a histologic picture suggesting a seborrheic or eczematoid dermatitis (fig. 2). The patient was unable to stay for treatment but was given an alcoholic lotion for the scalp and a 2 per cent solution of gentian violet for the dermatitis of the ears. The patient reported no improvement in the condition of the ears.

CASE 5.—This patient complained of a dermatitis of both ears, the face and the eyelids, which had been present for six months. An oozing edematous crusting dermatitis involving the lobules of both ears, the forehead, the upper lids and the bridge of the nose was found, which was thought to present an appearance characteristic of streptococcic dermatitis. On culture of the lesions, Staphylococcus aureus was found. The dermatitis cleared up rapidly with the use of a mild ointment. In three months, however, a generalized, moist dermatitis, suggestive of an atopic eczema, developed. This was complicated by a subacute purulent mastitis with multiple abscesses scattered throughout the left breast. Culture from the breast also revealed the presence of Staphylococcus aureus. After a simple amputation of the breast the dermatitis cleared up rapidly with local applications.

Fig. 1 (case 4).—Dermatitis confined to the external ear with weeping and fissuring suggestive of streptococcic dermatitis. Staphylococcus aureus and a diphtheroid bacillus were found on culture.

CASE 6.—A woman aged 38 had had a dermatitis back of the ears since childhood. For the two years previous to admission to the clinic she had had attacks of fall hay fever. Intradermal tests revealed positive reactions to giant, small and western ragweed, to orris root and to egg white. Examination of the ears showed a moist scaling dermatitis on the postauricular region of both ears (fig. 3). A biopsy specimen was not diagnostic. Culture of the lesions revealed the presence of both Streptococcus haemolyticus and Staphylococcus aureus. The lesions showed a rapid response to treatment with a mixture of a 1:1,000 solution of merthiolate and a 2 per cent solution of thymol.

CASE 7.—A woman aged 37 had had generalized infantile eczema until the age of 7. She was free then until four years ago, when a severe dermatitis recurred over the hands, the forearms, the left popliteal space, the face and the ears. She had had fall hay fever and perennial vasomotor rhinitis for many years. On cutaneous testing the patient gave grade 4 reactions to the cereal grasses and to ragweed, on a basis of 1 to 4, and also had a strongly positive reaction to milk. About a year ago the dermatitis of the ears became much more severe. The skin of the ears was erythematous and edematous, with oozing and crusting. The external auditory canals were swollen shut and were exquisitely tender. Treatment of the ears with routine ointments gave no relief. On culture of the lesions Streptococcus haemolyticus, Streptococcus viridans, Staphylococcus albus and Escherichia coli were found. Biopsy specimens from the retro-auricular region and the left thigh showed similar changes suggestive of a seborrheic dermatitis. Attention to cleansing the external auditory canal and the alternate use of

Fig. 2 (case 4).—Acanthosis, papillomatosis and extravasation of leukocytes through the epidermis. Clumps of cocci were demonstrated in the stratum corneum.

phenylmercuric nitrate dusting powder and of the merthiolate and thymol mixture caused a complete relief of the symptoms and a disappearance of the dermatitis as they related to the ears in less than a week. The generalized dermatitis has remained the same, but the patient has had no recurrence of the dermatitis of the ears in two months.

CASE 8.—A woman aged 65 complained of pruritus vulvae and ani and scaling behind the ears of a duration of three months. There was a marked dry scaling of the scalp. The patient responded to treatment but returned four years later, at which time there was a marked, moist, oozing dermatitis involving the scalp, ears, side of the neck, axilla, breasts, navel, groin and perineum. The whole of the external ear was involved. The clinical picture was that of so-called streptococcic dermatitis. Cultures from all the regions involved revealed Streptococcus viridans, Streptococcus haemolyticus and Staphylococcus aureus; the last only was found beneath the right breast. The patient responded promptly to the use of 2 per cent crude coal tar ointment.

Fig. 3 (case 6).—Moist, weeping, crusting dermatitis confined to the retro-auricular area and adjacent scalp.

PATHOLOGIC STUDIES

Specimens for biopsy were removed by cutaneous punch from the retro-auricular regions in seven of the cases in this series. Specimens for biopsy taken from various regions in the body in thirteen other cases of so-called seborrheic dermatitis were reviewed and the pathologic changes found to be comparable to those seen in this series.

Clinical and Cultural Observations in Cases of Dermatitis of the Ear

Age	Sex	Distribution of Dermatitis: Ear Canal	Distribution of Dermatitis: External Ear	Lesions Elsewhere	Cultural Results
29	♀	+	+	—	Aspergillus fumigatus
31	♀	+	—	—	Micrococcus
41	♀	+	+	—	Diphtheroid bacillus Streptococcus viridans
38	♀	+	+	—	Staphylococcus albus Streptococcus viridans
31	♀	+	+	Cheeks	Staphylococcus aureus
24	♀	—	+	Blepharitis, scalp	Pityrosporum ovale (smear) Staphylococcus aureus
65	♀	+	+	Intertrigo axilla, breast, vulva, blepharitis	Streptococcus haemolyticus Staphylococcus aureus
44	♂	+	+	—	Staphylococcus albus Pseudomonas, species (?)
59	♂	+	+	—	Micrococcus
37	♀	+	+	Pruritus, anus and vulva	Micrococcus
33	♀	—	+	—	Staphylococcus albus Streptococcus viridans
54	♀	+	+	Blepharitis	Streptococcus viridans Aerobacter aerogenes
27	♀	+	+	—	Micrococcus Gram-negative bacillus
50	♀	+	+	—	Staphylococcus aureus, right ear Micrococcus aureus, left ear
31	♂	+	—	—	Staphylococcus albus
29	♀	+	+	—	Streptococcus haemolyticus Diphtheroid bacillus
45	♀	—	+	—	Micrococcus
10	♀	—	+	—	Micrococcus
38	♀	+	+	Nose, blepharitis, atopic to orris root, ragweed	Streptococcus haemolyticus and Staphylococcus aureus, right ear; Streptococcus haemolyticus and Staphylococcus albus, left ear
54	♀	+	+	—	Staphylococcus albus
52	♀	+	+	Cholesteatoma	Staphylococcus aureus
41	♂	—	+	Blepharitis, face conjunctivitis	Micrococcus
49	♀	—	+	Face, neck scalp	Staphylococcus aureus
47	♀	+	+	Blepharitis, staphylococcus, abscess breast, face, arms	Staphylococcus aureus
33	♀	+	—	Contact dermatitis arms	Streptococcus viridans Pseudomonas, species (?)
62	♀	—	+	Blepharitis, scalp, face, breasts	Pityrosporum ovale (smear) Micrococcus
37	♀	+	+	Atopic to ragweed, cereals	Streptococcus haemolyticus Streptococcus viridans Staphylococcus albus Escherichia coli
45	♀	—	+	—	Staphylococcus aureus Diphtheroid bacillus
34	♀	—	+	Scalp, chest	No fungi in tartaric acid
30	♂	+	+	Axilla, trunk, thighs	Streptococcus haemolyticus and Pseudomonas, species (?) right ear; Streptococcus haemolyticus and Pseudomonas species (?) left ear
45	♀	+	+	Atopic ?	Streptococcus viridans Monilia parapsilosis
35	♀	+	+	Atopic eczema, asthma	No culture
23	♀	+	+	Face	Streptococcus viridans and Micrococcus, right ear; Micrococcus, left ear
47	♀	+	+	Arms, shoulder, breast	No culture
27	♀	—	+	Eyelid, atopic to cereals, cocoa, animal dander	Staphylococcus albus Streptococcus viridans

The pathologic changes found in dermatitis of the ears are not diagnostic, features suggestive of contact and atopic eczema and of localized neurodermatitis being present in varying degrees. There usually is a varying degree of acanthosis (thickening of the prickle cell layer) and papillomatosis with dilatation of the superficial vessels and extravasation of leukocytes and lymphocytes about the vessels. Occasionally there is slight thickening of the walls of some of the vessels as the result of edema of the endothelial cells. In the acute exudative phase, extravasation of leukocytes and lymphocytes occurs through the epidermis together with spongiosis and formation of vesicles, and in these vesicles or vesicopustules clumps of cocci are frequently to be found.

Frozen sections stained for fat revealed little if any amount of lipoid in the stratum corneum and none in the rest of the epidermis, which is in contradiction to the statements in the German literature,[12] including those of Gans.[12] Seborrheic dermatitis has always been regarded as a greasy process and Marchionini [13] recently demonstrated an increase of cholesterol and total lipoids in the superficial layers of the skin and so-called seborrheic regions of the body. We were unable to make use of his method or to make any determinations in regard to the p_H of the skin. Seven of ten cases in this series in which determinations for blood lipoids were made were within normal limits. In one case there was an increase of lipoids associated with a cholesteatoma in the mastoid, in another case slight increase of lipoids was associated with a low basal metabolic rate and in a third case there was a slight increase of lipoids in a woman aged 54 with a disease of the gallbladder.

BACTERIOLOGIC METHODS

In our cases material from the lesions of the external ears and in certain instances from dermatitis elsewhere on the body was studied both by direct microscopic examination and by cultural methods. The affected regions, after very light sponging with 50 per cent alcohol followed by drying with sterile gauze, were scraped with a sterile sharp-edged wire loop. The material thus obtained was examined directly as dried smears stained with Gram's stain, as moist preparations in 30 per cent solution of sodium hydroxide and as moist preparations in equal parts of Loeffler's methylene blue and glycerin. Cultures were made in tubes of dextrose brain broth and on slants of Difco wort agar. Two dextrose brain broth tubes were inoculated in a routine manner, crystal violet in a concentration of 1 : 200,000 being added to one as suggested by Haxthausen.[14] After incubation at 37 C. for from eighteen to twenty-four hours the brain broth cultures were examined microscopically and any organisms found were plated out in blood agar or other appropriate mediums for identification. Except for Difco wort agar, special mediums for isolating fungi were not employed.

With the exception of Pityrosporum ovale, no organism was identified, without cultural proof, solely on the basis of its morphology in preparations made directly from the lesions. Mass-forming cocci were divided into micrococci and staphylococci on the basis of morphology, according to the criteria of Thompson.[15] The staphylococci were classified further on the basis of pigment

12. Gans, Oscar: Histologie der Hautkrankheiten, Berlin, Julius Springer, 1925, vol. 1, p. 275.

13. Marchionini, A.; Manz, E., and Huss, F.: Der cholesteringhalt der Hautoberschicht bei der Seborrhöe und bei der Psoriasis: Beiträge zur Kenntnis der pathochemischen Hautkonstitution des Status seborrhoicus, Arch. f. Dermat. u. Syph. **176**: 613-645 (June 14) 1938.

14. Haxthausen, H.: Les streptocoecies épidermiques étudiées par une nouvelle méthode de culture, Ann. de dermat. et syph. **9**: 201-212 (April) 1927.

15. Thompson, Luther: Morphologic and Cultural Study of Staphylococci with Special Reference to Source, Am. J. Clin. Path. **2**: 125-134 (March) 1932.

formation. Streptococci were classified according to their action on blood agar plates. Other organisms were identified by their morphology and by their behavior on appropriate mediums. A summary of the clinical and bacteriologic data for each patient is given in the accompanying table.

TREATMENT

Suggestions for treatment have been as manifold as have been suggestions regarding the cause of the condition. In general, greases would seem contraindicated in treatment of the ear canal. Yet Mitchell [11] has reported excellent results in the cases in which he demonstrated streptococci from the use of 2 per cent ammoniated mercury in petrolatum. He warns against using mercury in any form without first patch testing the patient with 3 per cent ammoniated mercury ointment to detect sensitiveness to mercury. In the treatment of our group of cases we made an attempt to assess the value of a few of the suggested remedies. We used the following remedies: a mixture of equal parts of a solution of 1:1,000 merthiolate and a 2 per cent solution of thymol in 95 per cent alcohol; 2 per cent thymol in 95 per cent alcohol; metacresyl acetate; thymol iodide dusting powder; 1:1,250 phenylmercuric nitrate in a base of boric acid, zinc oxide and a talcum, and a mixture of 1:1,000 solution of mercury bichloride, boric acid and alcohol. There was a group of cases that responded favorably to local treatment of the external auditory canal.

We formed the working hypothesis that the irritating factor, of whatever nature, had as its pabulum the detritus in the external auditory canal and that the first requirement for treatment should be the most careful attention to cleansing the external auditory canal and drum of any foreign material. Difficulty was occasionally experienced in removing débris medial and inferior to the isthmus where in certain ears a relatively deep pit is formed. In addition to removing débris, attention was given to removing any adhering crusts or scales underneath which possibly causative organisms of whatever nature might find protection.

In eighteen of the twenty-five cases with involvement of the external auditory canal this careful handling of the external auditory canal seemed to be the important factor in clearing up the dermatitis not only in the external canal but in the rest of the external ear as well, with little difference in favor of any drug used. However, thymol iodide dusting powder, phenylmercuric nitrate powder or a mixture of boric acid, mercury bichloride and alcohol had apparently an equally favorable effect, the lesions disappearing in from three days to a week. In certain isolated cases the use of mercury bichloride or phenylmercuric nitrate produced a definite flare-up in the condition. These patients were subsequently patch tested to one or another mercurial and found to react positively. In certain other cases, however, treatment of the external auditory canal seemed to have no effect whatever on lesions of the concha and other portions of the external ear, the canal in fact seeming to be reinvolved repeatedly by an extension from the concha.

Patients who did not respond to treatment of the external auditory canal by the use of antiseptics or in whom additional areas of the skin became involved were referred to the dermatologic section for treatment.

In very acute dermatitis of the ears, wet dressings of 0.5 per cent solution of aluminum subacetate and boric acid wet dressings were used. The external ear in the so-called streptococcic types was treated with gentian violet or ammoniated mercury preparations. In chronic types of dermatitis where there was an element of local neurodermatitis or atopic eczema, 3 per cent ichthammol in zinc oxide ointment, 2 per cent crude coal tar and preparations containing salicylic acid and sulfur were used.

SUMMARY AND CONCLUSIONS

From consideration of dermatitis of the ear with involvement of the external auditory canal we believe:

1. The fact that streptococci or staphylococci or both were demonstrated in many of the cases in this series suggests that they might be of etiologic significance. We were unable to establish definitely in any case that the dermatitis was primarily on a bacterial, fungal or allergic basis. It will be necessary therefore to classify our cases as idiopathic dermatitis of the external ear.

2. Involvement of the external auditory canal is of primary importance in the majority of cases of dermatitis of the ear, with certain notable exceptions. These exceptions are the basis for the difference of opinion as to the curability of dermatitis of the ear that exists between the otologist and the dermatologist.

3. Careful attention to cleansing the external auditory canal is the factor of primary importance in certain cases. The selection of drugs for treatment is of distinctly secondary importance.

4. No general formula of treatment can be applied to this condition, but a variety of drugs should be at hand to avoid the hypersensitive reaction produced in certain individuals by any one of the drugs ordinarily employed.

5. Some cases require the active cooperation of the dermatologist and the otologist to effect a cure. Dermatitis of the ear, where the external auditory canal is not involved, lies wholly in the province of the dermatologist.

6. The amount of dry or oily seborrhea (dandruff) did not correspond to the degree of involvement of the ears or ear canal, although in a few cases the external ear appeared to be involved by extension of a marked seborrhea.

7. Retro-auricular dermatitis, of either the dry or the moist type, and either independent of lesions or associated with lesions elsewhere on the ear and other parts of the body, frequently was associated with positive cultures for streptococci or staphylococci or both. A moist exudative dermatitis was not necessarily indicative of the presence of streptococci.

8. Further histopathologic and histochemical studies should be made in regard to the older concept regarding an increase in lipoids in the skin, which was not borne out in this series.

ABSTRACT OF DISCUSSION

DR. JAMES H. MITCHELL, Chicago: In 1936 before this section I read a paper on "Streptococcic Dermatoses of the Ear." From talks with various colleagues it appears that I am trying to make streptococcic dermatitis out of everything about the ear. Nothing could be further from the fact. Those cases were treated as dermatitis and I missed it completely. Since then I have studied quite a number of cases, some of which are so obvious that it doesn't require any expert judgment to see the origin of the dermatitis about the ears. I don't wish to give anybody the impression that all of these cases are streptococcic. The question remains as to what role the staphylococcus may be playing. This ubiquitous organism is always present, and it is impossible to make any kind of cultures from the skin without getting it, unless it is inhibited with gentian violet or something else. So that it is very difficult

to say what role the staphylococcus may have played. In the cases that I have studied I made a careful effort to find fungi but I haven't found any. As regards treatment, ammoniated mercury in absence of sensitiveness is of value and the x-rays in conjunction with it are also of benefit. Gentian violet instilled into the ear is of benefit in many cases and always tolerated, practically. But some of them in spite of these various efforts have gone on and given me a great of trouble. I still feel that the streptococcus is a very active etiologic factor and physicians who are not familiar with the work of Milian would do well to look it over. He has many fine pictures of all kinds of lesions about the large folds of the body, the ears and in the scalp. The streptococcus can imitate pityriasis steatoides or sicca to such a degree that one cannot tell the difference unless one makes careful microscopic examinations and cultural examinations as well. The organism can be very plainly demonstrated in the scales along with Pityrosporum ovale. If Pityrosporum ovale is the active factor, streptococci will not be found. If the streptococcus is the active factor, Pityrosporum ovale will be limited in number.

DR. M. F. ENGMAN, St. Louis: It is very difficult to prove just what organisms are primary and what others are secondary. A number of years ago at Barnard Hospital a number of us studied the bacterial flora of a number of ulcers and inflammations in which the etiology was known, such as tuberculous ulcers, cancerous ulcers, and some others. We were able to find all sorts of organisms, particularly staphylococci, streptococci and Bacillus proteus. The finding of these organisms of course showed only that in these particular instances they were present as secondary invaders. The purpose of this work was to show that the presence of such organisms did not prove that they were the cause of the disease. They are commonly found in any inflammation. Our group here published the results of our work in a number of papers on the role of Pityrosporum ovale in seborrheic dermatitis. Of course as yet we cannot say that it is proved beyond a fraction of a doubt that this organism produces seborrheic dermatitis. Our opinion is that it does. However, we all maintain an open mind on this subject.

DR. HAMILTON MONTGOMERY, Rochester, Minn.: Time did not permit Dr. Williams to discuss disturbance in lipoids in regard to so-called seborrheic dermatitis or to give detailed reports of the representative cases which are given in the substance of this paper. In regard to Pityrosporum ovale as an etiologic agent we used Difco wort agar according to the technic outlined by Moore in all thirty-four cases but in none of these were we able to obtain positive cultures. Pityrosporum ovale was present in two cases on direct examination. We found an aspergillus in one case. I have had the opportunity of seeing many of Dr. Mitchell's cases of streptococcic dermatitis which he has presented at the meetings of the Chicago Dermatological Society and at other meetings and in which he has been able to demonstrate the presence of streptococci not only from behind and within the ears but also from the scalp and various intertriginous folds, and which we used to call "seborrheic eczema of Unna." I appreciate that Dr. Mitchell isn't trying to make all these cases out to be streptococcic dermatitis and we have seen several cases which duplicated the clinical picture of his cases but in which only staphylococci could be demonstrated on culture. In one of these cases there subsequently developed a severe mastitis of the breast from which pure Staphylococcus aureus was grown in culture. In this case one should regard the staphylococcus as a definite etiologic factor. We had two women employees of the clinic in this group who had had infantile eczema and typical atopic eczema on which recently there was superimposed a severe retro-auricular weeping moist dermatitis involving the ear canal. This dermatitis did not respond to the usual types of treatment directed toward an atopic eczema but did respond promptly to the use of mercurial preparations and gentian violet such as one would employ in treating a streptococcic dermatitis. Furthermore, both streptococci and staphylococci were present in cultures from the affected areas. One cannot definitely state, however, that the streptococcus or staphylococcus or any other bacteria or fungi are the etiologic factors in a given case owing to the fact that as yet it has been impossible to fulfil Koch's postulate.

THE SYMPTOMATOLOGY OF LYMPHOMA

ITS ENDLESS VARIETY

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Experience in the medical wards of a general hospital over a period of many years has indicated to me, as doubtless to many other physicians, that lymphoma is a disease both ubiquitous and pleomorphic, presenting itself in ever changing symptomatology. It has a great capacity for producing bizarre clinical pictures and a strong propensity for having its entry heralded by symptoms and signs diagnostically misleading. Again and again it is met at operating or autopsy table, previously unsuspected, yet unquestionably the cause of the clinical picture. I have nothing authoritative to say on lymphoma. I shall not even present statistics or discuss the literature. I merely wish to point out the importance of considering lymphoma in the differential diagnosis of obscure conditions and to discuss briefly the question: When, as practitioners obliged to make diagnoses, should we think of lymphoma?

On what is known of the nature of the disease we may dwell for a moment. Of its cause nothing definite is known, although the production of lymphomatous-like tissue in mice by benzene [1] and the finding of tissue resembling lymphoma [2] in man with benzene poisoning suggests a humoral origin of some sort. The disease is generally considered to be neoplastic—a neoplasm taking origin from a cell of the lymphocyte series anywhere between the primordial or stem cell and the mature cellular elements. Pathologists recognize several types described by such terms as lymphoblastoma,[3] reticulum cell sarcoma, lymphosarcoma, Hodgkin's disease and giant follicular lymphoma. Whether these types represent separate entities or merely varieties of a single entity is undecided. That in certain cases the pathologic picture may pass from one type to another suggests that the disease is fundamentally unitary. As clinicians, we are more concerned with whether our patient *has* lymphoma or has *not* lymphoma than with what *kind* of lymphoma he has. All types are, relatively speaking, radiosensitive and yield to some extent for a time to rather low dosage of radiation. This fact, together with the added one that surgery, unless necessary to relieve some complication, is generally contraindicated, is the chief reason why correct diagnosis of the presence or absence of lymphoma is important.

The type of pathologic picture is of some interest to the clinician, in that it has been shown that rate of progress of the disease bears some relation to the anatomic picture. Thus Gall [4] has shown that life expectancy is longer when the anatomic picture called giant follicular lymphoma is present than in any of the others. That type is seemingly the least malignant of the lot.

From the Medical Clinic of the Massachusetts General Hospital.
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1. Lignac, G. O. E.: Die Benzolleukämie bei Menschen und weissen Mäusen, Klin. Wchnschr. **12**: 109, 1933.
2. Mallory, T. B.; Gall, E. A., and Hunter, F. T.: Personal communication to the author.
3. This term has been used with at least two different meanings. It has sometimes been employed as an all inclusive term, synonymous with lymphoma, as used in the present paper. It also has been used to denote a tumor specifically derived from the cell in the stage of lymphoblast, in contrast, for example, to one derived from the lymphocyte, which might be called lymphocytoma.
4. Gall, E. A.: Personal communication to the author.

Although fundamentally neoplastic, the disease lymphoma resembles more closely in its clinical course and behavior certain chronic infections than it does other malignant tumors. While it may start locally in one particular lymph node or other tissue where cells of the lymphatic series are present, its inherent tendency is to become systemic or even constitutional. Moreover, in most cases at some stage of the disease the course is febrile. This perhaps is chiefly responsible for the similarity to an infectious process.

The symptoms of the disease may be the result of local interference with the function of involved organs or of pressure on neighboring ones, or of the general effects of the systemic extension of the lymphomatous process, such as fever, fatigue or itching. Since almost any part, or parts, of the body may be involved, the symptoms and signs which may be produced are nearly endless. It is my feeling that neither syphilis nor tuberculosis has anything on lymphoma in this respect.

The disease which most closely resembles it from the point of view of variety of picture and structures involved, as pointed out by Hunter,[5] and from which it must be distinguished because of the great difference in prognosis, is Hutchinson-Boeck's disease, or generalized sarcoid.

Let me cite some case summaries and then attempt to answer my question. Of the classic type of onset with localized or general lymphadenopathy, with or without splenomegaly or hepatomegaly, I shall say nothing. It is with the less obvious symptom pictures that I am concerned. Let us begin with primarily gastrointestinal pictures. The following will indicate the variety:

CASE 1.—A man of 55 came in with the picture of acute small bowel obstruction. The symptoms were of but a few hours' duration at entry. He had previously been well. Laparotomy disclosed a perforated tumor about 6 cm. in diameter obstructing the small bowel about at its midportion. On removal, the pathologist called it a reticulum cell or Hodgkin's sarcoma. A year later the patient developed a slight generalized lymphadenopathy, yielding promptly to roentgen therapy but showing on biopsy a picture which the pathologist could not identify with certainty as lymphoma. Lymphoma was quite unsuspected prior to operation in this case.

CASE 2.—A man of 61 for three years had had symptoms quite characteristic of peptic ulcer, with one episode of perforation. Six months before entry he had developed enlargement of lymph nodes in axillae and groins, which had been diagnosed Hodgkin's disease at biopsy. Roentgen treatment had made his ulcer-like symptoms worse, and a month before entry he had had a gastrointestinal hemorrhage. At entry x-ray examination showed a deformity of the antrum of the stomach and duodenum of very unusual character, not at all like peptic ulcer. During roentgen treatment over the stomach area he had several more hemorrhages. At autopsy, two years later, a very widespread lymphomatous (Hodgkin's type) disease was found, with induration and ulceration involving the stomach, pylorus and duodenum. The esophagus was involved also in a similar process, the common bile duct was occluded by tumor and there was invasion of the spinal nerve roots and spinal ganglions and of the pericardium.

CASE 3.—A man of 52 presented a four and a half year history of alternating constipation and mild diarrhea with progressive weight loss, anorexia and asthenia. A fortnight before entry he had had a sudden massive hemorrhage by rectum, passing both bright blood and black stools and going into severe shock, from which he was revived at another hospital by several transfusions. Physical examination disclosed a pale, poorly nourished man with a slightly distended abdomen and a mass in the epigastrium which was thought to be the left lobe of the liver. Neither the spleen nor any lymph nodes were palpable. The blood showed an impressive anemia with about normal color and volume index, and leukopenia. X-ray examination of the chest revealed multiple discrete areas of hazy density scattered throughout both lung fields. The hilus shadows were prominent on both sides and slightly lobulated. The radiologist considered the condition consistent with metastatic malignancy. Barium sulfate examination showed no sign of disease in the alimentary canal, but there was evidence of enlargement of the liver. The preliminary diagnoses were cancer of stomach or bowel with metastases to the liver or primary cancer of the gallbladder. Exploratory laparotomy was decided on and disclosed a large number of metastatic areas of malignant disease which looked like carcinoma. Several areas of annular thickening of the small bowel with superficial ulceration were found and the portion of the bowel bearing them excised. To every one's surprise a section taken from the liver proved on microscopic examination to be lymphoma of Hodgkin's type. The intestinal lesions also were anatomically consistent with the diagnosis. He survived the operation by only three days, so there was no opportunity to give radiation therapy. At autopsy it was found that the lymphomatous process involved lungs and adrenals as well as liver and intestine.

CASE 4.—A man of 54 previously had had an attack like acute appendicitis. Following this there developed persistent lower abdominal midline soreness, worse a half hour after eating and accompanied by constipation. Progressive anorexia, asthenia and weight loss also characterized the picture. At entry he was evidently sick. He had a slight general lymphadenopathy and palpable liver and spleen. He also had a sustained low grade fever. I made a diagnosis of probable lymphoma and Dr. C. M. Jones thought he also had small bowel obstruction and advised laparotomy. X-ray examination of the gastrointestinal tract, however, was negative and biopsy of a lymph node showed a lesion undoubtedly lymphomatous. There was some difference of opinion as between giant follicular lymphoma and Hodgkin's disease. He improved very rapidly on roentgen treatment, relapsed, improved again and now, two years later, is x-ray fast and failing rapidly. The symptom type represented can be described as that of cachexia with lower abdominal symptoms suggesting partial intestinal obstruction.

CASE 5.—A man of 52 came in with a four and a half month story of feeling of pressure under the xiphoid process and fulness after meals. Increasing constipation began at the same time. Four weeks before entry he began to have steady, nonradiating, severe epigastric pain, not relieved by food but relieved by vomiting. At this time a gastrointestinal series by a skilful radiologist was interpreted as duodenal ulcer. At entry, examination showed evidence of weight loss and tenderness, without spasm, on deep pressure in the epigastrium. X-ray examination showed thickened gastric rugae, interpreted as gastritis, spasticity of the antrum of the stomach and a deformed duodenal cap with an ulcer crater on the anterior wall at the lesser curvature. There was extreme tenderness to palpation in the region of the crater. A diagnosis of penetrating duodenal ulcer was made.

He was started off on a medical regimen for ulcer, but on this he did not improve and then gastric analysis disclosed that he had achlorhydria, a finding not consistent with peptic ulcer. A third x-ray examination, twelve days after the second, showed an unusual type of swelling of the inner surface of the prepyloric region and within the first and second portions of the duodenum. The adjacent loop of jejunum also showed swelling. The duodenal cap showed ulceration. The radiologist suggested that a lesion outside the duodenum and upper small intestine with secondary involvement of the intestine, or multiple areas of lymphoma, might explain the picture.

Laparotomy was decided on. It disclosed a large mass in the duodenum which seemed to be inflammatory thickening. To this the liver was adherent. The entire lesion had the appearance of an inflammatory ulcer which had penetrated through the anterior surface of the duodenum, perforation being prevented by adhesions. Behind the stomach, leading to the duodenum and extending up and down the vertebral column, was a diffuse retroperitoneal infiltration having all the char-

5. Hunter, F. T.: Hutchinson-Boeck's Disease (Generalized Sarcoidosis), New England J. Med. 214: 346, 1936.

acteristics of malignant disease, including involvement of regional lymph nodes. On biopsy these gave the picture of chronic inflammation, but the patient died a fortnight after operation and autopsy disclosed an ulcerating process involving the anterior wall of the duodenum which on microscopic examination showed the picture of lymphoma together with a marked inflammatory reaction presumably the result of subacute perforation.

In a considerable number of cases the presenting symptomatology is predominantly thoracic. Sometimes pulmonary tuberculosis or bronchogenic cancer are mimicked rather closely. For example:

Case 6.—A man of 65 for nine months had had continuous dull ache in the left shoulder and left pectoral region, which had grown steadily worse. It had been accompanied by productive cough. For five months the sputum had frequently been bloody and on several occasions there had been profuse hemoptysis. Physical examination disclosed a stony hard immovable mass deep below the right clavicle and a discrete movable hard nodule to the left of the trachea. There was a prominence in the region of the manubrium sterni which was dull to percussion.

The admission diagnosis was malignant disease of the lungs with metastases to the cervical lymph nodes, but after examining him myself I noted "The bleeding involves the bronchial tree, but it is a queer picture for bronchogenic cancer. I suppose a lymphoma could involve the trachea and cause bleeding."

X-ray examination showed a rounded mass with fuzzy borders just above the arch of the aorta, nonpulsating and 4 cm. in diameter. The radiologist thought the lesion to be metastatic or cancer of the bronchus, dermoid or lymphoma. Biopsy of the cervical mass proved the process to be one of lymphoma, Hodgkin's type. On roentgen treatment both the mediastinal mass and the mass in the neck practically disappeared.

Case 7.—A man of 54, two months before entry, developed a persistent cough productive of a small amount of whitish sputum. A little later he noted progressive asthenia and anorexia. His voice also became hoarse. On several occasions he had had drenching sweats. Ten days before entry, the other symptoms continuing, he developed the added ones of dyspnea and orthopnea.

He was found to have a persistent low-grade fever. His lungs were emphysematous and there were signs of fluid at the right base. The apexes of the lungs were clear; no rales were heard at any point. The only adenopathy found consisted in a few shotty nodules in the right side of the neck. The white count varied between 10,000 and 19,000 per cubic centimeter, and the eosinophils from 10 to 14 per cent. On right thoracentesis, 1,200 cc. of amber colored fluid was obtained, showing a specific gravity of 1.020, a predominating lymphocytic and monocytic sediment, and forming a pellicle on standing. No tubercle bacilli were found in the sputum.

X-ray examination showed a large lobulated mass of the anterior mediastinum on both sides extending downward from the clavicle about 15 cm. There was considerable difference of opinion as to what it might be, but since it rapidly decreased in size on lymphoma dosage of x-rays, there was little doubt of its being lymphomatous, although this was never established by anatomic examination.

This case represents a type of onset which could have been that of pulmonary tuberculosis or of some nontuberculous pulmonary infection.

We have had several cases recently in which the presenting symptomatology is that of acute upper mediastinal pressure. For example:

Case 8.—A man of 27 had been quite well until ten days before entry, when he began to have cough, dyspnea developing into very urgent stridor. On arrival at the hospital he was choking to death and died before anything could be done about it either surgically or by irradiation. Had a roentgenogram been taken at the onset of his symptoms the lobulated mediastinal tumor which he presented would have been found and roentgen treatment might have relieved him.

Another mode of onset is with ascites and dependent edema as the presenting manifestation:

Case 9.—A man of 72 had had increasing swelling of his abdomen and legs for eighteen months, also dyspnea and intermittent fever. Physical examination showed ascites (which on tapping proved chylous [6]), big liver and spleen and edema of the legs. His adenopathy was minimal, a few shotty nodes in the neck, axillae and groins, yet biopsy of one of them disclosed giant follicular lymphoma. A case of this type might easily have been taken at first blush for cirrhosis of the liver.

Onsets resembling pyelitis and rheumatic fever have also been encountered. Concerning the latter, for example, we have:

Case 10.—A boy of 12 had had frequent attacks of transient polyarthritic pain for seven months without swelling. He had lost weight and shown increased irritability. Four months before an enlarged thymus had been found and treated by x-rays.

At entry he was found to have palpable submaxillary lymph nodes and a few small nodes elsewhere. Neither the liver nor the spleen was palpable. He had an irregular fever. There was dulness along the left side of the dorsal spine.

By x-ray examination there were found a peculiar appearance to the transverse process of the fifth lumbar vertebra and an elongated soft tissue mass along the left lateral margin of the spine at the level of the eighth and ninth ribs. The interpretation was primary malignant tumor arising in the transverse process of the fifth lumbar vertebra with metastases to the lymph nodes of the dorsal spine. Biopsy of the bone tumor showed it to be lymphoma of Hodgkin's type. Roentgen treatment relieved his symptoms, but he died eighteen months later, autopsy showing lymphoma of Hodgkin's type with widespread bone involvement and involvement of the lymph nodes, liver, spleen, kidney and meninges.

Time will not permit me to give more case summaries. The list of bizarre onsets and pictures, however, is far from exhausted. The material includes cases in which the symptoms appear as purely neurologic, for example paraplegia due to a lymphomatous tumor impinging on the spinal cord. There are cases in which the first manifestations are dermatologic or the result of osseous involvement. In several cases the initial involvement has been in the thyroid, raising a differential diagnosis of chronic thyroiditis or cancer. In one instance the first involvement was of the prostate, with typical prostatic symptoms; in another there was an initial bilateral testicular involvement with an associated lesion in an ethmoid sinus; and in another the primary event was involvement of the parotid gland.

COMMENT

Thus the question When in differential diagnosis should the doctor think of lymphoma? can perhaps be answered by saying that, not only in the obvious conditions of lymph node enlargement or splenic or hepatic enlargement but also in the case of any acute or chronic symptoms referable to the gastrointestinal tract, the genito-urinary tract, the lungs and mediastinum, the abdomen and retroperitoneal regions, the osseous system, the central nervous system, the skin, or in that of any local swellings seemingly neoplastic or chronic inflammatory in nature, not provably due to something else, the possibility of lymphoma should be considered. Particularly is the likelihood of lymphoma enhanced when the picture in question is characterized, among other things, by sustained or intermittent fever. Indeed, nowadays experience indicates that, if mistakes are to be kept to a minimum, the differential diagnosis of obscure prolonged fever or recurring bouts of fever should include tuberculosis, brucellosis, infections of

6. Chylous ascites comes close to being pathognomonic of lymphoma.

the urinary tract and biliary tract, concealed suppuration, disseminated lupus, amebiasis and lymphoma.

Chronic obscure ill health, particularly increased fatigability, is also sufficient reason to think of lymphoma. Fatigability seems particularly an expression of an extensive, though very often concealed, lymphomatous involvement of vital organs. Its rapid relief under roentgen treatment justifies this conclusion as to its origin. Roentgen treatment could hardly have this effect on such symptoms when due to any other cause.

The gastrointestinal types of lymphoma have particularly interested me. It seems almost proper to say When is an ulcer not an ulcer? When it's a cancer or lymphoma. Anything a bit off color in a picture apparently due to peptic ulcer may properly arouse suspicion of lymphoma, atypicality in the roentgenograms, failure to respond to adequate ulcer treatment, and so on. Multiple ulcerations are particularly suggestive of lymphoma.

Lesions of the small bowel deserve special mention. The small bowel is not heir to a great variety of lesions and, when it can be shown to be organically diseased with or without obstruction, lymphoma should come to mind as a good possibility.

The ability of lymphoma to cause massive bleeding, hemoptysis, hematemesis or bleeding by rectum also must be appreciated.

The absolute diagnosis of lymphoma can be made only by biopsy. Whenever the disease is suspected, every effort should be made to find a lymph node or other lesion which can be removed and studied microscopically. It should be borne in mind, however, that only the positive biopsy is significant. A negative one does not exclude the existence of lymphoma in the patient. Repeatedly we get reports of chronic inflammation on lymph glands from patients later proved in other ways or by repeat biopsies to have lymphoma. Indeed, such a warning may properly be issued regarding biopsies in general.

The x-ray appearance of intrathoracic or gastrointestinal lesions, however, sometimes gives almost uncontrovertible evidence, and the rapid melting of a lesion under x-radiation leaves only a very small if any doubt as to its lymphomatous nature. Subsidence of fever under such treatment has a similar significance.

When biopsy is impossible and when the likelihood of lymphoma is definite, observance of the behavior of a lesion under low (lymphoma) dosage of x-rays, before exploratory surgery is resorted to, is desirable. Ordinarily, however, radiologists are correct in insisting on a biopsy before embarking on roentgen treatment.

CONCLUSION

I urge you to think of lymphoma, not only under the varied circumstances I have particularly mentioned, but also under numerous others. I wish you to realize that this condition, which is composed of six or more types, has an endless variety to its symptomatology.

ABSTRACT OF DISCUSSION

DR. RALPH A. KINSELLA, St. Louis: It seems curious that confusion in symptomatology should be emphasized as a feature of a disease. The situation may perhaps be approached first by picturing the structure of a lymph node, the lymphocytes, the stroma, in particular the reticulocytes, and secondly by realizing that one of these anatomic elements may be disseminated throughout the entire body along the reaches of the lymphatic system. We have then, on the one hand, a variety of changes that may occur in any one of the elements of the lymph gland, and then a distribution of these changes in any part of the body, so that emphasis may be given to symptoms in the abdomen, symptoms in the thorax or elsewhere, as Dr. Means has outlined. So we have the various pathologic types and the curious confusion in symptomatology. It has been in recent years that pathologists have arranged the different types of disease in the lymphatic system. The clinician, while ultimately seeing some difference between the patient with lymphosarcoma and the patient with Hodgkin's disease, is still unable to make clinical diagnoses of such conditions as lymphadenosis and reticulocytoma and to distinguish between leukemia as a disease, leukemic phases which may accompany any of the elementary disturbances. Dr. Means has emphasized the shifting character that a given case may show, without diagnostic features on which any particular pathologic type can be recognized, so that, grouping all these diseases together, it is justifiable to refer to lymphoma as a clinical entity and leave for the pathologist the determination of the particular cell change that has taken place. I am interested in those cases in which circulating blood changes may take place, the cases in which at least temporary lymphocytic leukemia may occur. I should like to ask Dr. Means one question, as to whether in his experience this has been an important feature in any or several of various pathologic types.

DR. JAMES H. MEANS, Boston: As to Dr. Kinsella's question about leukemia, I think I will leave the classification of these things to the pathologist. I am not a pathologist. I think the consensus is that lymphatic leukemia belongs in this group and that one could have a lymphoma blood picture with lymphatic leukemia or without. Certainly physicians see such cases, and I think the remarks I have made apply to lymphoma in the more usual clinical sense.

THE INCIDENCE AND RESULTS OF TREATMENT OF SUBCLINICAL AMEBIASIS

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During the last twenty-five years, sizable segments of practically every population group in this country and abroad have been examined for intestinal parasites. As Faust and his colleagues[1] have pointed out, "it is practically impossible to compare data on the parasite rates based on different population groups, utilizing different technics of diagnosis, and evaluating results according to individual idiosyncrasies." Nevertheless, because of such surveys it is now known that Endamoeba histolytica can be demonstrated wherever man is found without regard for race, latitude or social position. Furthermore, though accurate comparisons are impossible, it has been established beyond question that variation in incidence occurs among geographic, age and economic groups.

Craig,[2] on the basis of such surveys, has estimated that between 5 and 10 per cent of the population of this country as a whole harbors Endamoeba histolytica. If it is important for medical men to appreciate the seriousness of the picture for the country as a whole, it is equally important that they know with some degree

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1. Faust, E. C.; Hoffman, W. A.; Jones, C. A., and Janer, J. L.: A Survey of Intestinal Parasites in Endemic Schistosomiasis Areas in Puerto Rico, Puerto Rico J. Pub. Health & Trop. Med. 9:447 (June) 1934.

2. Craig, C. F.: The Pathology of Amebiasis in Carriers, Am. J. Trop. Med. 12:283 (July) 1932.

of accuracy the incidence of amebiasis in their own locality. If surveys have served a useful purpose in the past, there still remains for the future a real need for accurate local investigations of the civilian noninstitutional population. Without an accurate idea of the amount of amebiasis occurring in his practice a physician may, and often does, fail to consider the possibility of an amebic infection if he lives in a region in which the incidence is low. On the other hand, it leads to distrust if a clinical laboratory in such a locality is forced to report a long series of negative examinations to a man who expects an incidence of 10 per cent.

Until the Craig complement fixation test becomes more generally available or new tests are devised, it is unfortunate that contact between the patient and the clinical laboratory, which in the last analysis must make the diagnosis, should be so distinctly second hand. Dobell in 1917 wrote: "The errors committed by an examiner of little or no previous experience are such as I could not have believed possible if I had not actually encountered them; and in cases where the health of a patient is at stake, it is, I believe, almost better that no examination at all should be made than that it should be made by an incompetent and inexperienced person." A little more than a year ago, Kellogg and Scott [3] reported that in California the laboratory diagnosis of amebiasis was in an unsatisfactory state because of universal lack of trained personnel for work of this type and that "this, together with an equally widespread lack of understanding and appreciation of the situation on the part of everybody concerned, is productive of such a high percentage of unreliable reports, and their blind acceptance, that the situation is worse by far than if no laboratory tests at all were made in many, perhaps most, cases." What Dobell said over twenty years ago is still true today. What is true of Europe and California is equally true of New Hampshire, and it would be strange indeed if other points could not be found between the Atlantic and the Pacific where similar conditions exist.

The whole fault does not lie, however, with the training of our technicians. No technician can demonstrate amebas which have disintegrated by the time the specimen reaches the laboratory. Not only should a thoroughly trained and experienced person conduct the search for amebas but such a person should supervise the collection and subsequent handling of all specimens. How many patients, student nurses or physicians, for that matter, are familiar enough with the biologic peculiarities of Endamoeba histolytica to collect a specimen intelligently? It is a well known pedagogic principle that students will do just about as much as is required of them. By wider application, is it not likely that if it were realized how much more one ought to require by way of training for technicians there would be no problem?

It may appear that we have been merely restating old truths, but that lack of confidence in the diagnosis of amebiasis is widespread may be illustrated by the fact that in our annual examination of Dartmouth freshmen for amebiasis it has been found expedient to make, before treating a student, two permanent slides in order that we may have proof of his infection.

There exists in and around Hanover a stable, rural, nonindustrial population living alongside a college population whose members are drawn not only from all corners of the country but very largely from that stratum of the population which economically possesses a surplus over and above the demands of daily existence.

A selection of all the known local rural population from our records reveals that 205 of them have been referred to our laboratory during the past six years on the basis of gastrointestinal symptoms and not one has been found positive for Endamoeba histolytica; this in spite of the fact that examination of a single specimen has been the exception rather than the rule and that the method or methods used were adapted to the nature of the specimen.[4]

During that same period five faculty members returning from foreign travels and three other residents of the state, all suffering from diarrhea or dysentery, have been found positive. One of the latter returned from the Spanish-American War with severe attacks of diarrhea and dysentery which persisted at frequent but irregular intervals down to the time of treatment for acute amebic dysentery in October 1936.

Fecal examination of the entering class at Dartmouth was undertaken by one of us (Connell) five years ago and has been retained as a part of the routine physical examination administered at matriculation. Five years ago, on the heels of the Chicago epidemic, the role of the food handler in the transmission of amebiasis was not as well understood as at present. In fact, as McCoy put it, there was little choice, from the point of view of society, between a carrier of Endamoeba histolytica and a leper. With nearly 100 freshmen working as food handlers it seemed a worthy project, especially since, on the basis of the current surveys,[5] one might expect an incidence of better than 5 per cent. The early finding of two carriers waiting on the same table in college commons did nothing to lessen this impression. Furthermore, since Hanover seems to lie in the midst of a parasitologic desert with minimum opportunity for reinfection and since all patients treated might be expected to be available for reexamination for four years, it was felt that valuable information could be gathered on the efficacy of treatment in a disease prone, according to all records, to relapse.

The results of our examinations are as follows: In 1934 and 1936, when comparable methods of diagnosis were used, i. e. two specimens per man were obtained and a smear stained with Heidenhain's iron hematoxylin made from each, a total of 1,351 men were examined and twenty-four found positive for Endamoeba histolytica, an incidence of almost 1.8 per cent.

In 1935 lack of trained assistants made the satisfactory completion of a survey impossible. Recently, however, forty-five members of this class, taking our course in parasitology, were examined by a variety of methods, including culture and the zinc sulfate centrifugal flotation method devised by Faust and his colleagues at Tulane University of Louisiana School of Medicine. Of this group ten were found positive for one or more species of amebas and three of these, or nearly 7 per cent, were infected with Endamoeba histolytica.

These samplings have been a voluntary spare time undertaking; therefore, as the burden of college duties

3. Kellogg, W. H., and Scott, E. A.: The Laboratory Diagnosis of Amebiasis, Am. J. Pub. Health 27:813 (Aug.) 1937.

4. The following methods are used by our laboratory in such combinations as are dictated by the nature of the specimen: direct microscopic examination, with and without iodine; formerly the DeRivas, now the Faust zinc sulfate flotation by centrifugation, concentration technic; culture, using St. John's medium, and hematoxylin stained smears.

5. Wenrich, D. H.; Stabler, R. M., and Arnett, J. H.: A Protozoological Survey of 700 College Freshmen, abstr., J. Parasitol. 20:141 (Dec.) 1933. Arnett, J. H.; Wenrich, D. H., and Stabler, R. M.: A Survey of 401 College Freshmen for Intestinal Protozoa, Am. J. Trop. Med. 13:311 (May) 1933.

has varied, so have the methods used and the number of specimens examined per man been varied.

In 1937, with less time available, a slide was prepared as before but only one specimen was collected. In a class of 684 men five positive specimens were found. This year, 1938, a single specimen was again collected and the De Rivas concentration technic was used. The eighty-four men found positive for some species of ameba were later reexamined by the zinc sulfate method and five men in a class of 670 were shown to be positive for Endamoeba histolytica.

How to explain the drop in incidence from approximately 1.8 per cent for the years 1934 and 1936 to around 0.7 per cent for the years 1937 and 1938? While it might seem to confirm the observation of Spector,[6] who noted that in Chicago the incidence of Endamoeba histolytica among clinic patients fell from a high of 42 per cent for May 1934 to 2.4 per cent for February 1937, the drop in incidence among our students is unquestionably more apparent than real and due to variation in method.

Even though we do not believe that our examinations, even in 1934 and 1936, revealed more than half the infections actually present, they did at least point out again what every one seems prone to forget—that no part of the country is free from amebiasis. With positives from such widely separated points as Phoenix, Ariz., and Boston, Montreal and New Orleans, with fifteen states represented, including all the North Atlantic states except Delaware, Rhode Island and Maine, no one can afford to ignore the possibility of amebiasis for patients with gastrointestinal symptoms.

Granted that comparisons are dangerous, it nevertheless seems obvious, when one views the records for our rural and student groups alongside those of Andrews and Paulson[7] for Baltimore clinic patients and those of Meleney and his colleagues[8] for rural Tennessee that, in the temperate parts of our country at least, the probability of acquiring an amebic infection depends more on how one lives than on where one lives.

With nearly all workers in this field agreed that no one can carry Endamoeba histolytica without harm, we are impressed by the casual way in which many physicians refer to carriers as "just cyst passers." Several workers[9] have reported extensive lesions including liver abscess found at autopsy in persons who were known to have been without recognizable symptoms of amebic infection. The carrier state is, therefore, as Craig[2] makes clear, dangerous not only to society but to the individual. Not only may he at any time come down with amebic diarrhea or dysentery but, lacking such spectacular manifestations of the disease, may go on for years in a state of lowered efficiency without suspecting that there is anything wrong.

Only eight of the thirty-seven students found infected had ever felt bad enough to seek medical attention, and only three of these for diarrhea or dysentery. It did them little good, however, for none were ever examined for amebas and among the previous diagnoses which may be noted in their histories are chronic appendicitis, ulcerative colitis and low grade peritonitis. One man with a history of frequent and sometimes severe attacks of diarrhea and dysentery over a period of four years had been treated by a diet consisting of boiled milk and rice!

While most of the twenty-nine infected students who had never sought medical attention for relief of symptoms readily admitted to one or more symptoms suggestive of the carrier state, it is significant that not one of these men thought he had anything really wrong with him. Two men even professed to believe that diarrhea once or twice a week was perfectly normal.

These same men, within a few months after treatment, almost invariably insisted that they felt better, had more energy, engaged in more extracurricular activities and were able to prepare for their classes more easily. If such statements are founded in fact rather than wishful thinking, some reflection of such changes might be expected to appear in a man's scholastic record. While many marked reversals of form have occurred, we must conclude that a course of carbarsone is not the answer for every poor student in college.

Several papers[10] have been published fairly recently which report the results of treatment for such large numbers of persons with amebiasis that it would seem hardly worth while to report so small a group as ours if it were not for the fact that none of the thirty-seven persons treated have had a relapse, even though the minimum post-treatment examination procedure has consisted of examination of no less than three consecutive stools at the termination of treatment and a twice yearly check-up of two or more specimens for as long as the patient remains available. For the group reported, twenty have already remained negative for more than three years.

Carbarsone has been used in conjunction with emetine ever since it became available, and but one of our earliest cases received any other form of medication. The procedure has, of course, been varied to a certain extent according to the severity of the symptoms, but both carriers and those suffering from the more acute manifestations of the disease have received identical treatment, for the first five days; i. e., emetine hydrochloride, one-half grain (0.03 Gm.), intramuscularly twice a day for five days and, simultaneously, carbarsone, 0.25 Gm., orally twice a day for the same period. For most patients, including all those treated by French, carbarsone has then been continued for five additional days at the same rate. In a few cases, after the first five days of treatment, a rest period of five days was observed, after which the initial treatment was repeated. In all cases, including three persons suffering from acute dysentery, it has been impossible to demonstrate amebas in the stool after the third day of treatment. All men have been kept under close observation during the period when they were receiving both emetine and carbarsone. Those with diarrhea or dysentery have been kept in bed. No toxic symptoms have been noted.

While apparent relapses within forty days are reported by Craig[11] in 81 per cent of 130 persons treated with emetine alone and while apparent relapses following the use of carbarsone alone are not uncom-

6. Spector, Bertha K.: Amebiasis in Chicago, December 1933 to June 1936, Am. J. Pub. Health **27**: 694 (July) 1937.
7. Andrews, Justin, and Paulson, B. S.: The Incidence of Human Intestinal Protozoa, with Special Reference to Endamoeba Histolytica, in Residents of the Temperate Zone, Am. J. M. Sc. **181**: 102 (Jan.) 1931.
8. Meleney, H. E.; Bishop, E. L., and Leathers, W. S.: Investigation of E. Histolytica and Other Protozoa in Tennessee, Am. J. Hyg. **16**: 523 (Sept.) 1932.
9. Musgrave, W. E.: Intestinal Amebiasis Without Diarrhea: A Study of Fifty Fatal Cases, Philippine J. Sc. (B), **5**: 229 (July) 1910. Hiyeda, K., and Suzuki, M.: Pathological Studies of Human Amebic Ulcers Especially Those of Carriers, Am. J. Hyg. **25**: 809 (May) 1932. Craig.[2]
10. Hinman, E. H., and Kampmeier, R. H.: Clinical Intestinal Amebiasis, Am. J. Trop. Med. **17**: 263 (March) 1937. Canavan, W. P. N., and Herley, A. M.: Investigation of Intestinal Parasitic Infections of a Selected Population of Oklahoma City, ibid. **17**: 363 (May) 1937. Hakansson, E. G.: On the Effectiveness of Carbarsone as a Remedy for Amebiasis, Am. J. Trop. Med. **18**: 245 (May) 1938.
11. Craig, C. F., and Faust, E. C.: Clinical Parasitology, Philadelphia, Lea & Febiger, 1937.

mon (Hakansson[10]), it seems unlikely to us that the perfect results achieved in our small series should be ascribed entirely to either chance or the procedure followed but to a considerable degree it should be credited to lack of opportunity for reinfection.

Furthermore, though Craig[11] warns specifically against the use of emetine, except for control of severe diarrhea or dysentery, we feel that the marked degenerative changes noted by James[12] in Endamoeba histolytica in vivo following very small doses of emetine (from 1/8 to 4 grains [0.01 to 0.26 Gm.]) should not be ignored and that emetine in small doses may well be retained in the treatment of carriers in conjunction with other drugs, as reported for those patients treated by French.

SUMMARY

1. In this study 2,750 male college students were examined for amebiasis.

2. All Atlantic states north of Virginia (except Maine, Rhode Island and Delaware) are represented in the group found positive for Endamoeba histolytica, and no section of the country is without representation.

3. Carbarsone in conjunction with emetine has been used in treatment with no toxic symptoms or relapses noted. Twenty of the men treated have remained negative for more than three years.

ABSTRACT OF DISCUSSION

DR. JAMES L. BORLAND, Jacksonville, Fla.: I am in accord with every statement made by the authors. Infection by this protozoon in most localities approaches the incidence of syphilis. There is a lack of emphasis placed on this subject in medical schools and institutions for training technicians. It is futile to preach about the disasters which may attend infection by the organism if there is only a handful of technicians capable of recognizing the protozoon. The physician's lack of training is manifested by the frequency with which he accepts reports from untrained technicians and his failure to question inconsistent reports, such as the discovery of cysts in diarrheal stools. The solution rests on the demand by medical communities for adequate training of both medical students and technicians. A large number of patients who harbor Endamoeba histolytica have few, if any symptoms. This raises the question of whether the demonstration of Endamoeba histolytica in the stool means that the bowel has been damaged. There is evidence that extensive ulceration of the bowel may occur without producing symptoms. Pathologic studies indicate that amebic infection always causes some damage. The chief argument against this is that there have been found in all protozoal surveys, including my recent investigation, a number of persons harboring the parasite but not showing ill health. Colonic disorder has been demonstrated in every patient I have encountered with amebic infection from whom I was able to obtain a complete history and of whom I was able to make a thorough gastrointestinal examination. I believe it is better to regard a carrier of Endamoeba histolytica as diseased until more positive evidence appears to show that a true carrier state is possible. I should like to emphasize the difficulty in establishing a negative diagnosis. Fifty-eight per cent of the infections may be missed if only a single stool examination is made. Even in the most competent hands a positive diagnosis has been made at times only after the investigator has made fifteen consecutive daily stool examinations.

DR. GEORGE B. LAKE, Chicago: In view of the difficulty of making a laboratory diagnosis in some cases of subclinical amebiasis, clinicians ought not to overlook the value of the therapeutic test, nor ought they to assume that patients did not have amebiasis if they are relieved by such tests. Many of these patients do not have symptoms of dysentery or even diarrhea, and every practicing clinician has a number of patients who complain of obscure belly consciousness when it is difficult or impossible to demonstrate any adequate reasons for it. After a number of examinations of the stool by capable laboratory technicians have been found negative for amebas, one is justified in attempting the therapeutic test. There are patients who are sensitive to the arsenicals, but it is quite allowable after finding out something about that to try carbarsone. I have had success in several of these cases with the iodine-containing vioform given in doses of 40 grains (2.6 Gm.) a day for ten days. I have seen patients who remained clear of symptoms for periods of from six months to a year, and then the belly consciousness returned. Another course of vioform again relieved them. Perhaps they didn't need any more, though in some cases I have given three courses of this sort at intervals of six months or a year. I am well aware that such treatment not based on adequate and positive laboratory diagnosis may not be considered technically scientific, but I submit that it is good clinical practice.

DR. A. L. LEVIN, New Orleans: The incidence of amebiasis in the Southern states can be judged by an interesting episode during the trying period of 1918. During my service at the base hospital in Camp Beauregard, Alexandria, La., I made a survey of 5,000 troops for intestinal parasites. The men were from Arkansas, Mississippi and Louisiana. Among 5,000, sixty were found infested with amebas and quite a number of these had no clinical evidence. Regarding treatment, I give emetine in conjunction with other remedies, 1 grain (0.065 Gm.) hypodermically daily for six doses. One must watch carefully for emetine poisoning. The eradication of cysts in the course of treatment is of vital importance and this point should be stressed. Carbarsone, in my experience, does not always eradicate cysts. I use iodoxyquinoline sulfonic acid or diodoquin with very good results. In exceptional cases, large doses of bismuth subnitrate 1 or 2 drachms (from 4 to 8 cc.) three times a day, advocated by Deeks many years ago, is of value.

DR. WALTER L. PALMER, Chicago: I rise to raise a question with regard to the relative pathogenicity of different strains of Endamoeba histolytica with particular reference to the so-called small cyst race. I am aware that experimentally the small race of Endamoeba histolytica produces lesions. Certain facts were noted in the Chicago epidemic, however, which I think may be of significance. Dr. Bertha Kaplan, an expert parasitologist, found the small cyst forms of Endamoeba histolytica present in the stools first in December 1933. Prior to that we had had a high incidence of the large cyst race with many cases of active amebic dysentery. During the winter of 1933-1934 the incidence of these large cyst forms decreased and the incidence of the so-called small cyst forms increased. Then, after the summer of 1934, they gradually decreased again. Dr. Kaplan found that the small cysts grew out in culture in only 18 to 20 per cent of the cases, whereas the large cysts almost invariably grew. In the beginning we considered these small cysts of Endamoeba histolytica to be pathogenic, but as time went on a question arose in our minds as to whether that was true. Two years ago I went over the records of all small cyst cases. There was no definite, objective evidence of pathogenicity. Many proctoscopic examinations had been made but no ulceration had been found. There was no unexplained blood in the stool, nor had there been any evidence of hepatic abscess. I was also unable to satisfy myself that there were any symptoms attributable to the presence of the small cyst race of Endamoeba histolytica. It is only fair to say that some of my colleagues took the opposite view. Many of the cases were treated with vioform. Some were treated with emetine, some with various other drugs. Sometimes the cysts disappeared and the symptoms disappeared; sometimes the cysts persisted and the symptoms did not persist; sometimes the symptoms and the cysts persisted in spite of emetine and in spite of vioform. I have therefore grave doubt as to the identity of these small cysts or at least doubt as to their pathogenicity and clinical significance. They seem to me to behave differently from the large cysts. I should like to ask the authors if they took cultures of the positive stools, what percentage of them grew

12. James, W. M.: The Effects of Certain Drugs on the Pathogenic Entamebæ of the Human Intestine, Am. J. Trop. Dis. & Prev. Med. 1: 431 (Dec.) 1913.

out, and whether the cysts they observed they would classify as small cysts or as large cysts.

DR. FRANK H. CONNELL, Hanover, N. H.: The difficulty in culturing small races to which Dr. Palmer refers is a common experience. In St. John's medium, which we use as a matter of routine, perhaps a third of the small races fail to become established. As to pathogenicity of small races, Meleney and his colleagues have shown that strains vary in virulence and that the size of the cysts formed by any race of Endamoeba histolytica is not a safe criterion of pathogenicity. I feel that all carriers should be treated regardless of the size of the cysts passed.

TEMPERATURE FACTORS IN CANCER AND EMBRYONAL CELL GROWTH

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AND
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This paper presents clinical, pathologic and biologic evidence that "temperature" plays one of the most important parts in the activation of embryonic cell growth. Preliminary laboratory and clinical experiments continue to emphasize the importance of certain critical temperature levels in such embryonic cell activation. These studies have been submitted to careful analysis in certain directions. As far as we can determine, while the hyperpyretic state has been explored rather widely clinically, reports of little or no work have been published on the effect of reduced temperatures in disease, particularly in its application to the cancer problem. Our observations have opened up an entirely new vista and approach. We submit this material as factual data, in the hope of stimulating interest and provoking further investigation in a field as yet practically untouched.

After a study by one of us (Fay) of body surface temperatures, based on a neurologic dermatomere plan, it was disclosed that temperature in the extremities might fall from 12 to 22 degrees below that normal for the mouth and that, whereas the segments of the trunk were fairly uniform in their temperature response, the segment in which the breast lies (fifth thoracic) was extremely variable and showed an increase in temperature from 0.5 to 3 degrees above the temperature of segments lying within 2 inches on each side. The pattern was so variable in women because of cyclic manifestations of the menses and the physiologic variabilities encountered in lactation and gestation that no reliable average could be obtained. Even in males, the tendency to show an increase in the fifth thoracic segment was remarkable (fig. 1).

The question arose as to whether this local increased temperature might in some way be related to the fact that carcinoma finds a favorable location in the breast segment whereas both primary and metastatic carcinomas are known to be extremely uncommon in the extremities below the elbows and knees, where the body temperature is at its lowest level.

Attention was called recently to the low incidence of tumors of the hands and feet by Coley and Higinbotham,[1] who reported the occurrence of only forty-seven tumors involving the bones of the extremities in 1,211 cases of all forms of primary bone tumors. Of these, less than half (twenty-one) were malignant, and of these only two were metastatic. Similarly, Mason[2] noted that carcinomas of the hands and feet are equally uncommon—not more than 5 or 10 per cent of all squamous type epitheliomas—and are usually of low grade malignancy. Pack and Adair[3] brought out the fact that melanoma is the only form of tumor occurring with any considerable frequency on the hands or feet, 103, or approximately 21 per cent, of a total of 477 melanomas observed in a twenty-one year period at the Memorial Hospital having been in these areas. Of these seventy-four were on the foot and twenty-nine on the hand, almost exactly the reverse of the carcinoma picture, in which the frequency is two or three times greater for the hands. Geschickter and Copeland[4] emphasized the comparative infrequency with which skeletal metastases involve the extremities.

Dermatomere cutaneous temperature readings were made by a very ingenious and accurate thermocouple apparatus devised by Henny,[5] capable of recording within a few seconds surface and internal temperatures to within one tenth of a degree centigrade.

In July 1936 Fay[5] decided to attempt to reduce the temperature locally in the area of carcinomatous growth to that of the extremities and observe the effect on the tumor cells by means of repeated biopsies. The first patient (C. L.) was suffering from intractable pain from massive pelvic extension of a cervical carcinoma. She had both a rectovaginal and a vesicovaginal fistula. Three grains (0.2 Gm.) of morphine a day were not sufficient to control the pain. The patient was transferred to the neurosurgical service for chordotomy for relief of the terminal stages of suffering. A hollow capsule connected with a continuous circulation of ice water was inserted deep in the vaginal mass and continuous refrigeration of the local area maintained by

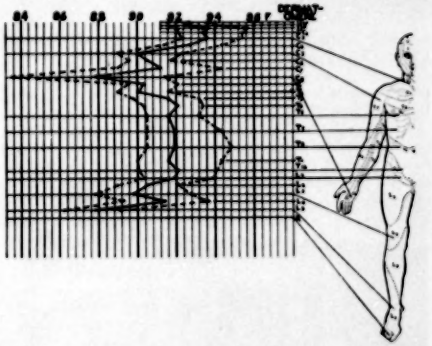

Fig. 1.—Cutaneous surface temperatures of twenty-seven normal males adjusted to a room temperature of 75 F.

Read before the Section on Pathology and Physiology at the Ninetieth Annual Session of the American Medical Association, St. Louis, May 17, 1939.

1. Coley, B. L., and Higinbotham, N. L.: Tumors Primary in the Bones of the Hands and Feet, Surgery 5:112 (Jan.) 1939.

2. Mason, M. L.: Carcinoma of the Hands and Feet, Surgery 5:27 (Jan.) 1939.

3. Pack, G. T., and Adair, F. E.: Subungual Melanoma, Surgery 5:47 (Jan.) 1939. Pack, G. T.: Symposium on Tumors of the Hands and Feet: Introduction, Surgery 5:1 (Jan.) 1939.

4. Geschickter, C. F., and Copeland, M. M.: Tumors of Bone, revised edition, New York, American Journal of Cancer, 1936, p. 494.

5. Fay, Temple, and Henry, G. C.: Correlation of Body Segmental Temperature and Its Relation to the Location of Carcinomatous Metastasis: Clinical Observations and Response to Methods of Refrigeration, Surg., Gynec. & Obst. 66:812 (Feb., No. 2 A) 1938.

constant circulation of water through an enclosed system at approximately 36 F. At the end of forty-eight hours the patient was pain free. The dose of morphine was reduced and its administration promptly discontinued. The second observation of interest was that within five days there had appeared a definite devascularization of the carcinomatous area with shrinkage in the gross fungating mass. Within three weeks evidence

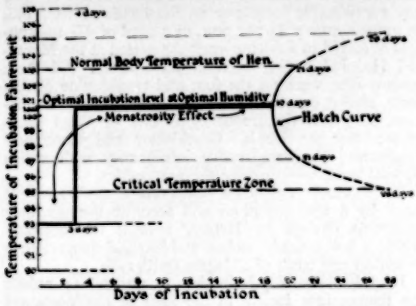

Fig. 2.—Temperature factors in chick embryo growth.

of fibrous tissue repair around the rectovaginal and vesicovaginal fistulas appeared and biopsy showed a definite degeneration of the tumor cells locally. It is noteworthy that during this period a temperature as low as 36 F. caused local ulceration about the normal areas near the vaginal outlet. The temperature was then permitted to continue at 48 F., which was found to be compatible with survival of the normal tissues.

Five weeks of continuous refrigeration had been accompanied by improvement in appetite, gain in weight, freedom from pain and gross shrinkage of the tumor mass. The patient insisted on leaving the hospital and returning to her family duties. She remained in good health for four and a half months, after which there was a return of pain and her local physician administered narcotics until her death in April 1937.

Fig. 3.—Chick embryo incubated at 90 F. for an initial period of seventy-two hours and subsequently at normal incubation temperature. Note stunting and malformation of skeletal development as well as complete ectopia cordis.

In the meantime a survey of the problem revealed the fact that malignant tumors occurred most frequently in areas associated with the higher structural and segmental temperatures, notably the uterus, breast and gastrointestinal tract. Similarly the localization of metastatic carcinomatous lesions was usually in the areas with higher temperatures, namely the lungs, the liver, the brain and the central, better vascularized areas of the skeleton. Studies of the temperature of the various viscera have been pursued since that time whenever opportunity presented during the course of surgical exploration of the various body cavities, and the data which have been collected in this fashion have merely confirmed what might well have been anticipated. Thus the ordinary oral temperature of 98.6 F. merely represents a mean average of the various temperatures of the several parts of the body made possible chiefly by the efficiency and integrity of the blood supply.

The work of Huggins and Noonan [6] may throw much light on the entire problem. These authors demonstrated that red bone marrow, present in the tail segments and metatarsal bones of newborn rats, normally disappeared from the extremities and the tail in approximately two weeks if the animals were exposed to environmental temperatures. If, however, the distal half of the rat's tail was implanted in the abdomen or back or the feet amputated and placed in the abdominal cavity, red bone marrow persisted during the long period of observation. The portion of the tail exposed to environmental temperatures, however, showed the

Fig. 4.—Instruments used in the refrigeration treatment of cancer of (*a*) the cervix uteri, (*b*) the intra-uterine fundus, (*c*) the breast (hollow blade for use under lesions) and (*d*) a stilet type of instrument for penetrating large tumor masses directly.

replacement of red bone marrow by yellow bone marrow, and it was concluded that the favorable temperature of the body was responsible for the retention in activity of red bone marrow. These observations were extended to other animals and to birds. Furthermore these authors found that, if young rats were raised in the environmental temperature of 95 F., red bone marrow persisted in the tail and small bones of the extremities.

As will be seen later from our observations, the important critical level of 95 F. apparently applies to the cavity of red bone marrow as it does to certain responses in the chick embryo and in carcinomatous cell growth. Another analogy might be permissible at this point, namely that red bone marrow represents the only normal metastatic type of cell proliferation which is continuously carried on in the body structure, and

6. Huggins, C., and Noonan, W. J.: An Increase in Reticulo-Endothelial Cells in Outlying Bone Marrow Consequent upon a Local Increase in Temperature, J. Exper. Med. 64: 275, 1936.

the tendency of carcinoma to metastasize into the blood stream may be worthy of consideration.

Our studies have concerned themselves not only with biopsy studies of patients subjected to local and general refrigeration for hopeless metastatic carcinoma but with careful analysis of the chick embryo and of certain plants through a wide range of temperature activity.

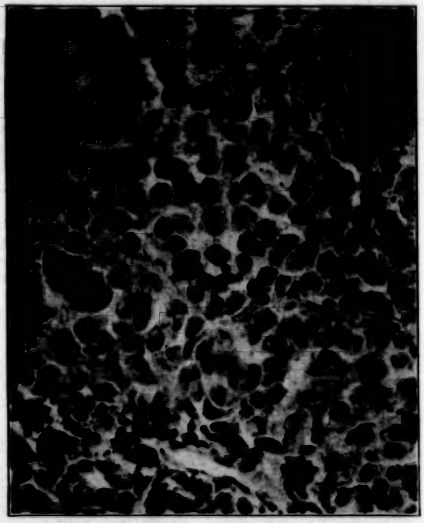

Fig. 5 (case 1).—Malignant melanoma of the vulva: Biopsy specimen taken before treatment, showing characteristic large polyhedral cells arranged in almost solid sheets, huge ovoid or round nuclei with prominent nucleoli and coarse chromatin granules and pale and granular cytoplasm. Note the typical melanin pigment visible both intracellularly and extracellularly, especially in the stroma.

Two common principles apparently apply to cellular activity, embryonal cell development and plant germination. Although the critical temperature bands may vary between flora and fauna, it seems possible for us to present tentatively the following two corollaries:

1. Favorable temperature is the chief activator in cell growth.

2. The physical spectrum (from x-rays to ultraviolet rays) contains some quality which is inhibitory to cellular growth and regulates maturation and differentiation.

We do not have time here to go in detail into the various methods by which these tentative biologic laws have been reached. Suffice it to say that confirmatory evidence has been obtained in several ways. In the first place it has been shown by one of us (Smith) that varying the temperature during the incubation and growth period of chick embryos is invariably followed by some alteration from the normal, in retarding development, in producing malformations and actual monsters or in disintegrating the embryonic tissue early in its effort to differentiate. This is well brought out by figure 2.

The initial experiments in this direction were designed with the simple incubation of fertile eggs at temperatures ranging from 108 to 90 F. for the twenty-one day period usually necessary for the normal hatching of the chick. There is a narrow range which might be spoken of as the optimal zone, in which normal growth, differentiation and organization of the tissues take place, with the development of a normal chick. This is between 97 and 104 F., although with either the upper or the lower level there will be an appreciable diminution in the number of viable chicks. Above 105 F. the temperature is too great for the successful growth and differentiation of embryonic tissue, and at 108 F. the embryo rarely persists in recognizable form for more than from forty-eight to ninety-six hours before completely disintegrating. At the lower level there is a critical temperature lying at approximately 94 or 95 F., at which there will be marked retardation in the development of the embryo and a viable chick will only rarely develop. Hatching takes place within twenty-three to twenty-six days when it occurs, and the chick usually dies within the first few hours. In the great majority of instances it is unable to peck its way out of the shell without assistance. Below this level there is still further retardation in the rate of growth and development of the embryo, and at 90 F. there will be no viable chicks, even when incubation is prolonged to thirty-eight or forty days. Indeed, differentiation seems to stop after the first few days of

Fig. 6 (case 1).—Specimen taken after ninety-six hours of refrigeration at 50 F. from the margin of a subcutaneous tumor nodule, showing normal unaffected connective tissue cells of the corium. Note the marked degenerative changes in the tumor cells characterized by loss of nuclear detail, actual disintegration of nuclear and cellular membranes and intercellular diffusion of pigment granules.

development and, while the embryo may remain alive throughout the entire incubation period, it can be safely stated that aside from the retardation and stunting of growth there will be various developmental defects such as incomplete wing buds, malformations of the feet,

failure of the body cavities to close either anteriorly or posteriorly and, almost always, ectopia cordis.

Subsequently, experiments were carried out in which the time interval during which these abnormal temperature levels were maintained was varied. It was found that the first forty-eight to seventy-two hours was the critical period, as eggs which were incubated at the

Fig. 7 (case 2).—Medullary carcinoma of the breast: Biopsy specimen taken before treatment, showing a typical highly malignant invasive medullary carcinoma without any suggestion of acinar formation. The cells show marked pleomorphism and anaplasia, with many atypical mitoses. There is a striking absence of desmoplastic stromal reaction.

critical level, between 90 and 93 F., for this brief period and then subsequently incubated at 103 F. for the remainder of the twenty-one day normal incubation time likewise showed 100 per cent of developmental defects (fig. 3), even to the extent of double-headed embryo formation.

Coghill [7] further confirmed these observations regarding the effect of reduced temperatures on the development of embryos. He reported essentially the same results in the development of the embryos of Amblystoma punctatum Cope as the result of an accidental experiment in which the embryos were stored in an electrical refrigerator for a prolonged period and subjected inadvertently to what might well represent the critical level of incubation temperature for amblystoma by the accidental turning off of the current (defrosting), permitting a brief period of incubation. Later, when the clutch of amblystoma eggs was taken to his laboratory for hatching, the entire 138 embryos showed some form of developmental defect comparable to the malformations found in our chick embryos.

It is our impression, gained from additional chick experiments, that a temperature just above freezing is not as seriously detrimental as is the maintenance of a temperature just below the critical level and this would seem to be borne out by Coghill's comment that, aside from retardation of growth, nothing abnormal was noted in his embryos until after this variation in temperature had taken place.

In the attempt to demonstrate the importance of temperature with respect to embryonic cell growth, a second series of experiments was undertaken, in which the effect of temperature on the growth of normal and cancer cells was studied by tissue culture methods. This work is not sufficiently advanced for us to attempt to report it in detail, but preliminary observations bear out the theory that critical levels exist for these cells and that tumor cells are more readily affected by alteration in temperature than are normal, differentiated, adult type cells. For a third demonstration, one needs only to turn to a broad consideration of plant life to realize the importance of heat and light with respect to germination, growth, differentiation and organization of these structures. Experimental data in this connection are submitted as visual evidence confirming our hypothesis. It seems reasonable to state that the effects of temperature and light are universal physical laws which apply to all growing cells.

By logical sequence, the investigation of the effect of alteration in temperature on the growth of immature,

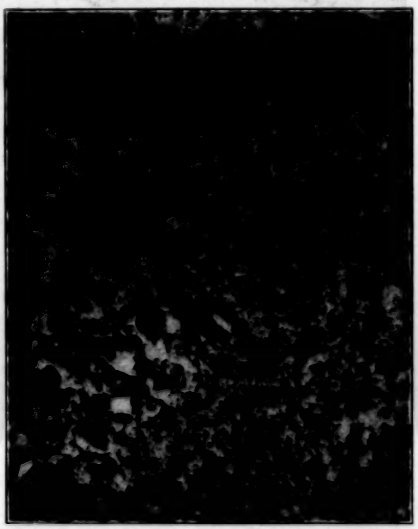

Fig. 8 (case 2).—Specimen taken after one month's refrigeration at 50 F., showing several rather startling changes. Grossly the tumor had diminished in size by more than 80 per cent. Microscopic examination showed degeneration and disappearance of most of the tumor cells. There was marked reparative fibrosis, which in turn showed myxomatous features. Note also the vascular degeneration.

undifferentiated neoplastic cancer cells in human beings was the next step. Several patients with cancer that was inoperable because of widespread extension of the initial lesion either locally or by metastasis, some of whom had received the maximum amount of irradiation

7. Coghill, G. E.: Effects of Chilling on Structure and Behavior of Embryos of Amblystoma Punctatum Cope, Proc. Soc. Exper. Biol. & Med. 35: 71-74, 1936.

or had strikingly radioresistant cancers, volunteered for local refrigeration of the primary tumor mass. Thirty-eight patients with cancer of this type have now been treated by local refrigeration alone combined with artificial "hibernation," in which for periods as long as five days the body temperature as read by rectal thermocouple was maintained at levels as low as 85 or 90 F.

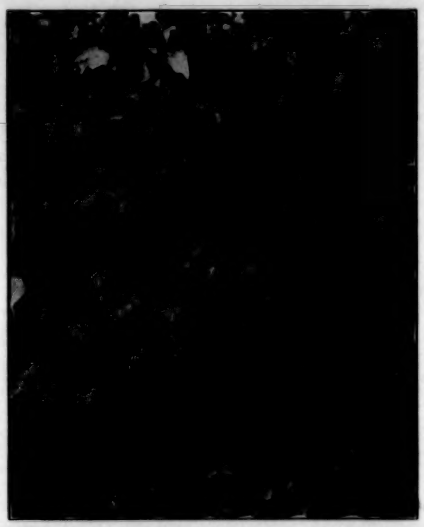

Fig. 9 (case 3).—Medullary carcinoma of the breast: Biopsy specimen taken before treatment, showing a rapidly growing carcinoma with undifferentiated tumor cells arranged in cords and clumps or singly, in purposeless fashion. The cell nuclei are large in comparison with the amount of cytoplasm. There is relatively little connective tissue stroma.

By refrigeration is meant the application of cold locally by means of ice water or a brine solution circulated through an apparatus designed especially to fit the structures in which the lesion exists and to secure the maximum distribution of the cooling process. By hibernation is meant a general reduction of body temperature below the critical level of 95 F. The necessary apparatus is designed by one of us (Fay) to meet the requirements of the individual patient (fig. 4).

The clinical and local results of refrigeration were so startling and significant that further advantage appeared possible by a reduction of the body temperature as a whole to levels critical for embryonic cells. Thus artificial "hibernation" was induced through the withholding of food, complete exposure of the body to a constant low environmental temperature (50 to 60 F.), preferably maintained by an air conditioning unit, and light narcosis produced with small doses of avertin with amylene hydrate and of barbiturates. In addition the cold applied locally to the lesion and ice bags applied to the head and other parts of the body aid in the general reduction of temperature. A state of artificial "hibernation" can thus be maintained in which metabolism is reduced to an almost negligible figure, with arrest of bowel and renal function, and during such hibernation neoplastic lesions are diminished in size even more strikingly than by refrigeration alone. Indeed, several patients with cerebral metastasis and resultant symptoms referable to the central nervous system on emergence from the hibernating stage have shown improvement in mental activity and sense of well being.

Clinically, certain striking results have been observed. In every instance there has been a prompt reduction in pain, which in most instances might be called complete local relief of pain. This is of particular interest because the majority of the patients had been receiving doses of sedatives as large as 5 or 6 grains (0.32 or 0.36 Gm.) of morphine a day and several had been referred to Dr. Fay's neurosurgical service for chordotomy for relief of pain. By the use of refrigeration it was possible to avoid surgical intervention and to eliminate sedation in almost every instance. This alone warrants further investigation of this method of treatment as an adjunct in the care of patients with cancer.

Furthermore, there has been regularly a rapid, gross, measurable decrease in the size of the lesion within twenty-four to forty-eight hours. In a few cases this has been as much as 50 per cent. This decrease in size has progressed steadily during the course of treatment.

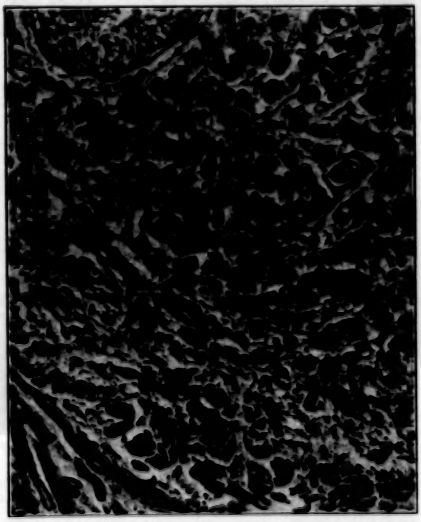

Fig. 10 (case 3).—Specimen taken after ten days' refrigeration at 50 F., showing striking degenerative changes. Note the pyknosis and karyorrhexis of cells, the loss of all nuclear detail, the disintegration of cytoplasm and the granular and myxomatous necrosis of collagenous stroma. The lesion was grossly less than 50 per cent of its original size at this time.

There has been also a general improvement in the patient's condition, with a gain in weight, a better appetite and a change for the better in the mental state. There has regularly developed a notable tendency toward healing of previously intractable ulcerative cutaneous lesions and fistulous tracts. It must be remembered

that these patients had all been given up from the standpoint of the more orthodox methods: operation and irradiation.

There has been a marked retardation in recurrences, and the rate of growth during recurrences has been definitely diminished, as shown by careful studies by one of us (Smith) of serial biopsy specimens taken at intervals during the course of treatment. In at least

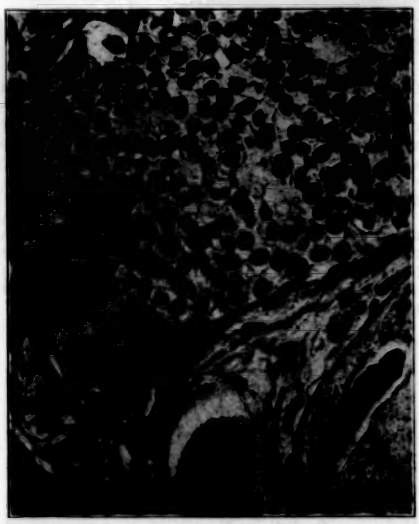

Fig. 11 (case 4).—Carcinoma simplex of the breast: Original biopsy specimen, presenting the characteristic picture of a diffuse carcinoma with many large sheets of relatively undifferentiated cells, showing considerable variation in the size of the nuclei, prominent nucleoli and occasional mitotic figures. The desmoplastic stromal response is fairly generous in places.

two instances there has been complete disappearance of the local lesion. Both of the patients happened to be relatively young persons, in their thirties, with cancer of the breast. One had a definitely scirrhous type of lesion associated with widespread skeletal metastasis and blindness, the result of metastatic tumor growth around the optic nerves and into the fundus. The other had a huge medullary ulcerative lesion, with extensive involvement of the local lymph nodes, a "frozen neck" and skeletal and cerebral metastases. The first patient remained free from tumor for more than two years. The metastatic bony lesions disappeared, and her sight returned to a point where she was capable of reading large type. The local lesion of the second patient disappeared and she has remained grossly free from recurrence for more than a year and a half. The metastatic skeletal lesions show repair by osteogenesis and the cerebral manifestations are greatly alleviated, although it is still too soon to know whether any permanent relief may be hoped for.

Our particular object in this paper is to present a few illustrative cases in which serial biopsy specimens were taken at varying intervals after the initiation of local refrigeration therapy (figs. 5-12). In general it may be stated that an almost inevitable sequence of events takes place. Within the first twenty-four to forty-eight hours, as has already been stated, there is a measurable decrease in the size of the lesion. When the lesion is viewed under the microscope, this decrease appears to be due largely to a reduction in the blood supply as a result of what must be interpreted as persistent ischemia, the effect of continuous cold. When the specimen is compared with the pretherapy specimen, it is often difficult to recognize blood vessels except when they are of fair size, because of their constriction and the absence of red cells within their lumens. Similarly, there is in many instances associated edema of the tissues, which likewise seems to disappear, as suggested by the density with which the stromal collagen is packed.

At the time of the preliminary observation, it is doubtful whether one would lay undue emphasis on any changes in the tumor cells themselves were it not for the fact that, as a result of subsequent serial studies, early regressive phenomena may be recognized. Even within the first forty-eight hours we not infrequently find definite changes in the staining capacity of the tumor cells. These suggest cells which are not well fixed, with a certain amount of swelling and granular change affecting the cytoplasm and a slight loss of nuclear detail and brilliance with respect to the chromatin and nucleolar material. No significant degeneration

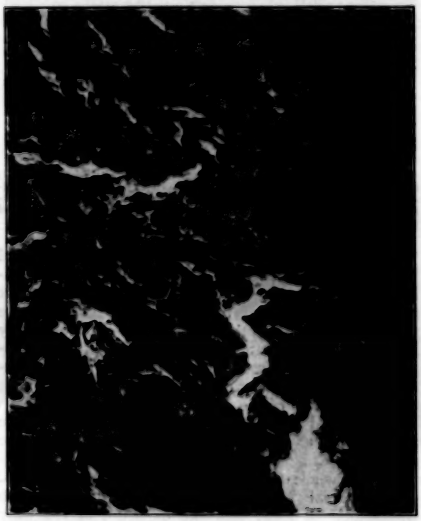

Fig. 12 (case 4).—Specimen taken after twenty-eight days' refrigeration at 30 F., showing the degenerative phenomena regularly encountered in such refrigerated lesions. The scirrhous areas had been somewhat refractory and a few persistent tumor cells could still be identified. Note many which show complete disintegration.

or necrosis seems to have occurred, and such changes as are present might well be interpreted as the result of inadequate nutrition due to the diminished blood supply, mild regressive phenomena which would be reversible if the blood supply were to become adequate again.

However, within the next few days there is no question as to whether or not anything has happened to the tumor cells. There is a degenerative picture which ranges from the minimal changes already noted to frank necrosis and complete disintegration of the cells. It is of interest and perhaps of significance that the more marked changes are usually seen in the deeper portions of the tumor, while the degeneration does not affect the better vascularized peripheral growing zone as promptly. This too is perhaps due to the blood supply. So long as the temperature locally is not reduced below an arbitrary figure of 40 F. no demonstrable changes take place in the overlying normal adult differentiated structures such as the skin and subcutaneous tissue. The rate of growth is materially reduced, as evidenced by a marked diminution in the number of mitotic figures and by the character of the cells, which in general fail to show the marked anaplasia of the pretherapy specimen. Accompanying the necrosis there is usually a prominent polynuclear cellular infiltration. Ultimately actual liquefaction and absorption take place, with disappearance of the necrotic tumor tissue.

On the basis of these clinical and microscopic observations, confirmed to a large extent experimentally through tissue culture methods, based on the hypothesis that temperature is important in the growth and differentiation of embryonic, young, undifferentiated cells, we suggest a wider investigation of this method of treatment as an adjunct to the methods in use today. We wish to emphasize the fact that this method represents merely another physical form of therapy, which is not recommended as curative in any sense of the word but is based on the premise that malignant tumor cells, representing immature, undifferentiated cells, are more susceptible to such physical agents as x-rays, radon and alteration in temperature than normal tissue. With this premise in mind, we believe that the maintenance of a temperature which is critical with respect to the capacity for growth and differentiation of such immature cells may influence them materially and that refrigeration therapy should be added to the armamentarium for the treatment of cancer.

In our investigations in this new field of research we have been encouraged by the fact that we are dealing with a tangible and measurable physical form of energy (heat), which can be controlled and regulated to any desired degree. The profound effect on growth which this one factor has exhibited is astonishing, on the one hand, now that we have observed its possibilities, but seems quite simple and obvious, on the other, when viewed from the standpoint of response in the biologic life about us and the well known agricultural dependence on the changes of the season. Further analysis of this physical factor shows it to be in the same physical spectrum as visual light, x-rays and radium. Nearer the center of the physical spectrum lies a zone of transmutation of energy into heat (infrared) which is apparently concerned chiefly with activation and stimulation of embryonic cell growth. Far down in the same spectrum lies an inhibitory and destructive area known to science, extending from the ultraviolet to the gamma rays of radium. It would appear that optimal cellular activity and growth maturity arise from the proper interplay between the stimulative portion of the physical spectrum (critical heat zone) and the inhibitory and destructive zone arising just beyond the visual light band and extending to the bands of radium and x-rays.

When these facts are reduced to a mathematical concept (fig. 13) it would appear that the maximum destructive effect on embryonic cell activity could be produced by subtraction of the activating agent (heat) through methods of refrigeration and by intensification and selective use of the inhibitory and destructive portions of the spectrum (x-rays, radium and certain ultraviolet rays), so that an appropriate combination might conceivably be obtained to produce selective inhibitory and destructive effects in tissue beyond our present physical possibilities and the apparatus so far perfected. We are now conducting studies, to be reported later, on the effect of selective ultraviolet rays plus refrigeration.

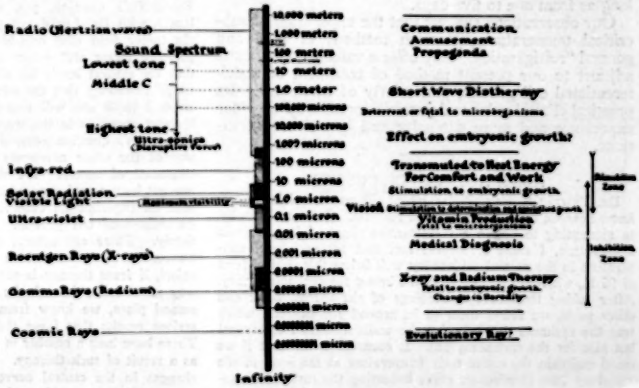

Fig. 13.—Physical spectrum.

SUMMARY

Relatively low body surface temperatures normally exist in the segments concerned with the extremities (from 88 to 90 F.), and the breast segment (fifth thoracic) tends to maintain a higher surface temperature than the adjacent segments of the trunk. There is relative infrequency of primary or metastatic carcinoma developing in those parts of the body enjoying reduced temperatures, as compared to the organs and portions of the body where optimal high temperatures are found.

Certain clinical, pathologic and biologic evidence indicates that young, undifferentiated cell growth and activity require an optimal temperature and that "critical" temperature levels exist below which these cells become inactive or undergo degenerative changes.

Local and general measures of "refrigeration" applied to patients suffering from hopeless metastatic carcinoma

have been discussed and the effects of these reduced temperatures on cell growth and activity, shown by serial biopsy and tissue cultures, indicated.

A "critical" level of around 95 F. has been noted below which undifferentiated cell growth, as exemplified by carcinoma pathologically and by the development of chick embryos, normally is arrested. Marked degenerative changes have been noted after seventy-two hours in biopsy specimens from carcinomatous tissues when continuously subjected to temperatures of 90 F. or below. Our observations have shown that normal cellular tissue is capable of withstanding 40 F. for prolonged periods of time without evidence of degenerative changes and normal reparative processes in carcinomatous areas maintained at this level. Tissue culture studies have confirmed these clinical observations.

Relief of pain encountered in terminal states of metastatic carcinoma has promptly followed "refrigeration" of the area involved or induced states of "hibernation" in which the patient has been maintained at levels of rectal temperature between 81 and 90 F. for periods as long as from one to five days.

Our observations suggest that the application of subcritical temperatures, through methods of local and general "refrigeration," may offer a valuable therapeutic adjunct to our present method of treatment of undifferentiated cell growth, particularly of carcinoma. Its practical clinical value and possibilities must await wider experience and more extensive and intensive observations.

ABSTRACT OF DISCUSSION

Dr. Temple S. Fay, Philadelphia: It may be of interest to know how we originally conceived the idea. Quite accidentally, in attempting to obtain a dermatomere chart of body surface temperature, I came across the fact that the peripheral temperature in the normal subject lay well below this critical level of 95 F., whereas those areas in the breast segment might vary. After taking thermocouple readings of the uterus, brain and other parts, we found them to be around 100 degrees, which was the optimum not only for the undifferentiated embryonal but also for the carcinoma cell. It occurred to me that if we could maintain the entire body temperature at the level of the periphery (the Geschickter chart indicating the rarity of metastatic lesions below the elbows and knees) we might influence metastatic areas in the body as a whole. Therefore, in bringing out what Dr. Smith has so definitely substantiated pathologically (original observations were presented before the American College of Surgeons, a year and a half ago, *Surg., Gynec. & Obst.* February 1938), the embryology as well as the tissue culture studies have indicated that we are dealing with a more important phenomenon, perhaps, than that just concerning carcinoma and embryonal cell activity, a physical principle that biologically concerns the entire field of cell activity and growth. I have but little to add to the paper excepting to say that in this field so far we have not attempted to promote or produce a means of treatment. We have attempted only to analyze the effect of temperature on certain undifferentiated embryonal cells. I may say to those who may attempt to use this refrigeration method that each case is its own definite problem. We have had to construct our own apparatus to fit each individual. It is most important to maintain careful thermocouple readings of the tissue temperatures in order to establish whether or not one has reached the level of refrigeration that one desires. Clinically we find that this reduction in temperature relieves pain, thus saving the individual from neurosurgical operative procedures. It is also possible to relieve the patient of narcosis.

Dr. Israel Davidsohn, Chicago: I wanted to ask Dr. Smith whether he is familiar with observations on malignant tumors in coldblooded animals, which might possibly throw some light on these very interesting phenomena.

Dr. Mary B. Baughman, Richmond, Va.: I have a number of women with carcinoma at the menopause, and I have found that I can get some relief from pain by the injection of ovarian hormones to stabilize their general condition. I wonder whether that would not have somewhat of a tendency to lower the temperature, the pelvic temperature.

Dr. F. W. Hartman, Detroit: I should like to ask what relation, if any, this work may have to the effect of higher temperature on embryonic growth, tumors particularly. Warren of Rochester, of course, has tried fever therapy in various types of malignant disease, with limited success. I have seen a few cases in Detroit treated with fever therapy alone or with combinations of fever therapy and irradiation. Some of these cases have responded very nicely. We have at least one bone sarcoma of the clavicle now well seven years, after a combination treatment of this kind. There may be a definite possibility of combining the refrigeration with the fever therapy. Switching from one to the other, perhaps, would kill these few remaining cells which apparently are the difficult ones to eradicate, whether one uses x-rays or fever or, in this case, refrigeration.

Dr. Lawrence W. Smith, Philadelphia: In reply to Dr. Davidsohn's question, yes, we have discussed this at great length with Dr. Lucké and others who have been working in the tumor field with cold-blooded animals. I think the temperature factor still exists as a major biologic principle but that the critical levels for different forms of animal life may vary. Assuming that the safe differential levels in temperature exist, I think one will find it just as applicable in the cold-blooded group as in the warm-blooded group. As far as Dr. Baughman's question goes, this is not an attempt to correlate any of the other extremely valuable work in the endocrine treatment of cancer. We wish to emphasize that treatment has not been a major premise in this work at all. It has only been an experimental observation of the effect of temperature on embryonal cell growth. Dr. Hartman's question is very timely. There are several things which I can think of in answer to the points which he brings up. First, arguing a priori, if fever therapy is used, one must put the cells, on the way up at least, through the growth stimulating zone. In the second place, we know from a good many and some rather serious results that fever therapy is not without its dangers. There have been a number of cases in which death has occurred as a result of such therapy. We know that certain permanent changes in the central nervous system may occur when the temperature gets up into the vicinity of 107 or 108 F. In other words, there is in fever therapy a very narrow temperature range in which tumor cells may be destroyed without, at the same time, destroying normal tissue. In refrigeration therapy there is apparently an almost limitless differential in the temperature field in that normal cells, as far as we can determine from all the experimental evidence at hand to date, are not affected by temperatures as low as 40 F., whereas tumor cells begin to show these changes at levels a little below 95, so that we have a differential factor of safety of nearly 50 degrees in temperature as against perhaps half a degree or so on the fever side. If one thinks of this in terms of therapeutics at all, I believe we have at most merely an adjunct to therapy of cancer by other methods. We hope that a combination of these methods may be very important in the future. If we start our cases out with refrigeration therapy and hit them at these temperature levels where cell growth is not going to occur, where we can at least put them into a stage, so to speak, of inactivity, and then perhaps bombard them with x-rays or radium or other method of treatment, we may have something which may be important. At the moment we have a means of treating intractable cancer in its last stages and providing comparative comfort for these patients, because their pain is practically eliminated. Healing is stimulated and we have gotten rid of foul smelling, sloughing, ulcerative lesions in some of these cases. From the standpoint of application of this treatment, the control of pain is the outstanding part of the story.

FAMILIAL NEPHRITIS

REPORT OF CASES AND REVIEW OF THE LITERATURE

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AND
HENRY SCHUMER, M.D.
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It has been known for a long time that certain disease entities have familial tendencies. Some examples of this are hemophilia, allergy, acholuric jaundice, insanity, diabetes and general arteriosclerosis and hypertension. With the exception of postscarlatinal nephritis, however, there are comparatively few recorded instances of chronic diffuse glomerular nephritis in two or more members of the same family.

Dickinson [1] reported a family in which for three generations many members had albuminuria.

Pel [2] studied the genealogical tree of a family for three generations in which there were nineteen cases of nephritis which seemed to be of a chronic interstitial type. Several of these nineteen patients died with uremia. Males and females were equally affected. All the sufferers passed the disease to the next generation with the exception of one daughter, who had six children all free from nephritis. The progeny of the nonsufferers were free from the disease.

Meigs [3] reported a family in which the father suffered from nephritis; three of his children, two daughters and one son, died of nephritis and another daughter was afflicted with the disease.

Kidd [4] reported his observations of the incidence of nephritis in a family studied for three generations. In the second generation seven died of kidney disease and two others suffered with it. Three members of the family were free from the disease. The two children noted in the third generation also had nephritis.

Thomson and Macauley [5] reported four cases of nephritis in one family following influenza.

Benson [6] reported a family in which nephritis successively developed in four children. Three died at intervals of about a year.

Eason and his associates [7] reviewed the reports of familial nephritis in the literature and added three more instances. In the first family there was a marked association of apoplexy and nephritis, six members being affected by one or both diseases. In another family there were seven cases of nephritis, five of which were discovered in childhood and adolescence. Four of these were diagnosed within a few weeks of one another. In the third instance three brothers aged 18, 19 and 20 years respectively and one sister aged 10 years developed nephritis within a period of two months.

Ernstene and his associates [8] reported a familial outbreak of acute diffuse glomerulonephritis. Eight of ten children successively developed sore throat, fever, coryza, headache and general malaise, which lasted for a period of from three to seven days. (No child showed any evidence of scarlatina, but three had had scarlatina three years previously). In six of these children, signs and symptoms of acute diffuse glomerulonephritis developed during convalescence from seven to twelve days after the onset of infection. Absolute proof of the identity of the organism causing the infection could not be determined, although cultures of material from the throat yielded streptococci. All the children recovered within eighteen months.

Acknowledgment is made to Dr. Joseph Felsen, director of pathology, for the photomicrographs and pathologic studies and to Dr. Gamliel Soland, chief of the peripheral vascular department of the Bronx Hospital for his aid in the clinical studies.

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3. Meigs: Tr. Coll. Physicians Philadelphia, 1883, p. 166.
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7. Eason, J.; Smith, G. L. M., and Buchanan, G.: Hereditary and Familial Nephritis, Lancet **2**: 639 (Sept. 27) 1924.
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REPORT OF CASES

Our instance of familial nephritis occurred in three brothers aged 24, 25 and 23. All of them died after a comparatively short period of renal insufficiency terminating in uremia and death.

Fig. 1 (case 3).—Section showing thickening of Bowman's capsule (arrow), complete replacement of glomerular tuft by scar tissues and cystic tubules filled with hyaline material.

CASE 1.—G. B., aged 24, a grocer, was admitted to the Mount Sinai Hospital March 17, 1931, and died March 24. He gave a history of frequent sore throats and colds. Six months prior to his admission he contracted scabies. About this time he began to complain of weakness, crops of boils and loss of weight. Three weeks prior to admission nosebleeds, insomnia, nervousness, palpitation and diminution of urinary output developed. Faintness and vomiting appeared during the three days prior to admission.

On physical examination the patient was acutely ill with flushed face, rapid deep respiration and distinctly urinous breath. The fundi showed pallor of the disks, extremely narrow arteries and perivasculitis and a few exudates. The blood pressure on admission was 150 systolic, 100 diastolic. Later it dropped to 116 systolic, 76 diastolic and finally was recorded

as 150 systolic, 96 diastolic. Examination of the blood revealed a hemoglobin content of 70 per cent and 20,100 white blood cells with 84 per cent polymorphonuclear leukocytes. The blood urea was 260 mg. per hundred cubic centimeters, the blood calcium was 5.7 mg. per hundred cubic centimeters and the carbon dioxide combining power 14.3 volumes per cent. The urine showed a trace of albumin, rare casts and occasional white blood cells; the guaiac test gave negative results. (The concentration test was not done because of the uremia.)

During his stay in the hospital the patient had a few brief epistaxes, and despite the forcing of fluids parenterally there was only a slight drop in the blood urea and rise of the carbon dioxide combining power. He went steadily downhill, the vomiting increasing progressively, and he died a week after admission.

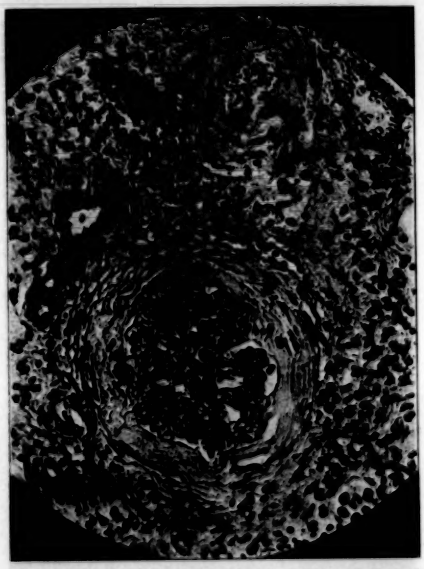

Fig. 2 (case 1).—Section showing marked thickening of Bowman's capsule and adherent glomerular tuft. Compare with similar structure indicated by arrow in figure 1. (Slide obtained through the courtesy of Dr. Paul Klemperer, Mount Sinai Hospital.)

NECROPSY

Necropsy was performed by Drs. Arthur Schifrin and David Beres.

Gross Pathologic Changes.—These consisted of chronic glomerulonephritis with secondary contracted kidneys; acute fibrinous pericarditis (marked); hypertrophy of the left ventricle (moderate); hemorrhagic gastritis and jejunitis (uremic); chronic passive congestion of the spleen; bilateral pleural effusion and pulmonary edema; hemosiderosis of the liver, spleen (and lung?); bilateral dilatation of calices and ureters (mild); multiple cysts of the kidneys, pinhead to 6 mm. in size (due to fibrosis), and granular deposits on the liver, spleen and pleura—nature (?).

Histopathologic Changes.—There was marked atrophy at the surface of the kidney. The raised areas corresponded to underlying dilated and enlarged tubules; the depressed areas to zones of increased dense connective tissue in which numerous completely and partly hyalinized and shrunken glomeruli were present. The glomeruli were diffusely involved. In the atrophic areas they were as described. Many gradations were seen with adhesions to Bowman's capsule, thickening and fusion of loops. Crescents as such were not seen. In some places there was marked extracapsular thickening. There were still quite a few glomeruli which under low power appeared normal but under high power showed fusion of loops. In these blood might, however, still be seen.

Tubules were collapsed and replaced by connective tissue in atrophic areas. Dilated tubules contained no blood.

Interstitial tissue was fibrotic with many foci of darkly nucleated round cells. Large blood vessels showed congestion. Elastica stain showed only slight arteriolar sclerosis.

CASE 2.—M. B., a man aged 25, a hospital attendant at the Morrisania City Hospital, was admitted to the wards of that hospital July 30, 1934. His chief complaints were vomiting, abdominal pain, diarrhea, weakness, headache and nosebleeds.

One brother (G. B.) died of chronic glomerular nephritis in 1931. The patient had measles, chickenpox, mumps and diphtheria in early childhood and influenza in 1918 at the age of 9 years. Present History: The onset of symptoms came about a week prior to his admission, with malaise and weakness. Three nights later he had a severe headache and was dizzy. This was accompanied by epistaxis. The next morning he had epigastric pain, vomited and had three loose bowel movements.

On physical examination the patient was acutely ill, restless and bleeding from the gums and had a uremic breath. The fundi showed hypertensive retinitis. The heart and lungs were essentially normal. The blood pressure was 150 systolic, 100 diastolic on admission and rose to 166 systolic, 100 diastolic before death. The blood had a hemoglobin content of 80 per cent, 4,500,000 red blood cells, 7,800 white blood cells, with a normal differential count. The blood chemistry showed a urea nitrogen of 145 mg. and creatinine of 4.6 mg. per hundred cubic centimeters of blood. The urine showed a specific gravity of from 1,004 to 1,006, albumin 1 plus, few casts but no red blood cells. The spinal fluid on puncture showed a pressure of 12 mg. of mercury but otherwise was normal. The electrocardiogram was normal. A diagnosis of chronic glomerular nephritis was made and symptomatic therapy instituted. However, the patient failed rapidly. He became more drowsy and vomited at frequent intervals. The urea nitrogen kept mounting until it reached 241 mg. per hundred cubic centimeters of blood. Auricular fibrillation developed; he lapsed into coma and died August 18.

Permission for autopsy was not obtained.

CASE 3.—H. B., aged 23, the third brother, a grocer, was admitted to the Bronx Hospital in the service of Dr. Henry Schumer Nov. 17, 1936, and died November 30. He had measles as a child, was treated in the Massachusetts General Hospital in December 1928 at the age of 17 for Marie Strümpell's disease and had an appendectomy in 1929. However, up to Nov. 11, 1936, he was unaware that he had hypertension or nephritis. At that time he consulted a physician because of severe headache, weakness of the lower extremities, anorexia and nausea, and pallor. His symptoms became progressively worse; he became drowsy, uncooperative and irrational and was referred to the hospital.

On physical examination he was well nourished and in a semistuporous state. His edamatous face had a marked waxy pallor, and there were several necrotic areas on the mucous membranes of the lips, mouth and nose. He had a dry beeflike tongue and a definite odor of urine on his breath. Respirations were of the Kussmaul type. The pupils were equal and regular and reacted to light and in accommodation. The fundi showed no evidence of hypertensive retinopathy. Examination of the heart revealed a normal sinus rhythm and no adventitious sounds. The apex was felt in the fifth interspace in the midclavicular line. There was no evidence of pericarditis. The pulse rate was 90 per minute and the blood pressure 224 systolic, 160 diastolic. The lungs, abdomen and extremities were normal. The Wassermann and Kahn reactions were negative. Examination of the urine revealed a fixed specific gravity ranging between 1,008 and 1,010, albumin ranging from a trace to 3 plus, frequent white blood cells in all specimens and a few red blood cells in the antemortem specimen. The sedimentation rate was 6 mm. in five minutes, 12 mm. in eleven minutes and

18 mm. in seventeen minutes. Examination of the blood revealed a hemoglobin content of 56 per cent; red blood cells numbered 3,380,000 and white blood cells 13,000, with a differential count of polymorphonuclear leukocytes 83 per cent, nonsegmented polymorphonuclear leukocytes 5 per cent, lymphocytes 10 per cent and monocytes 2 per cent.

The chemical examination of the blood revealed dextrose 115.6 mg. per hundred cubic centimeters, urea nitrogen ranging from 122.4 to 166 mg., nonprotein nitrogen from 153 to 231 mg., creatinine from 4.54 to 4.68 mg., phosphorus from 5.7 to 7 mg., calcium 8 mg., uric acid 6 mg. and carbon dioxide combining power 42.8 volumes per cent. The electrocardiogram revealed a sinus tachycardia and slurring of the QRS complexes.

A diagnosis of chronic glomerular nephritis and uremia was made on admission and treatment instituted. He was given dextrose parenterally, calcium gluconate, sedatives and spinal drainage to relieve the cerebral irritation, but to no avail. His temperature, which was 100.6 F. on admission, rose to 103.6 on the sixth day of his stay in the hospital and signs of pneumonia developed in both lungs, more marked on the right side. He vomited incessantly, gradually lapsed into coma and died November 30, thirteen days after his admission to the hospital.

NECROPSY

Necropsy was performed by Dr. Joseph Felsen.

Gross Pathologic Changes.—These consisted of uremic frost; left subconjunctival hemorrhage; pericholecystic adhesions; fatty liver; petechial submucosal hemorrhages of the colon; granular, cystic, contracted kidneys; bilateral bronchopneumonia, particularly of the right lung; left ventricular hypertrophy; thickening of the mitral valves, and few atheromas of the aorta.

Histopathologic Changes.—Examination of the kidney sections showed advanced changes in the glomerular tufts and small arteries. The former exhibited marked thickening of Bowman's capsule with some exudative changes. The glomerular tufts were narrowed, fibrotic or completely obliterated by scar tissue. Varying degrees of atrophy and obliteration could be seen in different parts of the section. The parenchyma was the seat of advanced degenerative changes with dilatation of the tubules and atrophy of the lining epithelium. In some areas the atrophic and somewhat cystic tubules were filled with a hyaline material. There was a generalized and diffuse increase in the connective tissue between the tubules, surviving glomeruli and arterioles. There was a striking similarity in the pathologic picture seen in the kidney sections of the brother G. B., particularly in the thickening of Bowman's capsule.

COMMENT

In comparing the three cases, one is struck with the similarity of the age, the symptoms, the apparent suddenness of onset and the short duration of illness. Careful inquiry revealed that none of the three brothers had scarlet fever and that at no time did they have a simultaneous illness as in the cases reported by Ernstene,[5] Thomson and Macauley [6] or in one of the cases of Eason and his associates.[7]

To explain the etiology one may postulate that (*a*) the appearance of chronic glomerulonephritis in the three brothers may have been a coincidence, (*b*) that all three had had a similar unrecognized infection of some sort in childhood, or (*c*) that their kidneys were either hypogenetic or else were the so-called *locus minoris resistentiae* and hence were more susceptible to disease.

Coincidence may be excluded, there being too many factors to make it at all likely. Repeated questioning of the parents failed to elicit a history of scarlatina or any other illness that the three boys might have had either simultaneously or successively, except that they all suffered from "nasal trouble." Hence a common infection as in the cases of Ernstene, Thomson and Macauley, and Eason can be ruled out. As there was no evidence of hypogenesis on autopsy (it has been found that hypogenetic kidneys are more prone to infection and nephritis than normal kidneys), one is forced to accept the hypothesis that their kidneys were the *locus minoris resistentiae* and hence more susceptible to nephritis. The parents, surviving brother and three sisters were studied carefully to rule out latent nephritis. Repeated examinations of the urine, chemical analyses of the blood and urea clearance tests revealed no demonstrable renal disorder.

To determine whether the surviving members of the family had increased sensitivity (allergy) to the hemolytic streptococcus or to a product of its growth, we repeated the experiment of Longcope,[9] who found in experiments with intradermal tests of bouillon filtrates of hemolytic streptococci that patients with acute and subacute glomerulonephritis gave exaggerated cutaneous reactions. This is not a temporary condition but may exist several years after the patient has recovered from the attack of nephritis.

A bouillon filtrate of hemolytic streptococci was made, and the mother, four children and four controls were given intradermal tests. The four controls, the mother and the four children all gave positive cutaneous reactions to the 1:100 dilution of the filtrate but negative reactions to the 1:200 dilution of the filtrate. We conclude, therefore, that the skin of none of the tested subjects was sensitive to the bouillon filtrate of the hemolytic streptococcus.

To make sure that a food sensitivity did not exist in the surviving members of this family, the youngest brother and sister were referred to the department of allergy for testing of the skin. The usual routine food and epidermal intradermal tests resulted in entirely negative reactions.

None of the surviving members of the family gave evidence of vascular spasm. The youngest daughter, a highly neurotic girl of 19, complained of coldness of the extremities, mottling of the skin and tingling of the fingers. She could obliterate her radial pulse by holding her breath (Valsalva experiment). Very thorough study by the peripheral vascular department at the Bronx Hospital revealed no evidence of vascular spasm, however.

While the pathogenesis of glomerulonephritis is not entirely clear, there are certain accumulated data which tend to point to the following conclusions:

The glomerular lesions of acute glomerulonephritis are not due to direct invasion of the kidneys by streptococci or other bacteria but to the injury of the glomeruli by their toxic product. This would account for the fact that acute glomerulonephritis is very rarely seen in the early stages of scarlet fever, tonsillar sepsis or puerperal sepsis, despite the fact that the blood and urine may harbor numerous virulent micro-organisms. This hypothesis is further confirmed by the fact that Wilson,[10] Longcope and his co-workers,[11] Friedemann and Deicher [12] and other observers have failed to find micro-organisms in the blood or urine in cases of acute glomerulonephritis.

The discovery by the Dicks and Dochez of the scarlatinal streptococcus with its powerful toxin, and the demonstration of the presence of the toxin of the scar-

9. Longcope, W. T.: The Pathogenesis of Glomerular Nephritis, Bull. Johns Hopkins Hosp. **45**: 335 (Dec.) 1929.
10. Wilson, quoted by Maclean, H.: Albuminuria and War Nephritis Among British Troops in France, London, Great Britain National Health Insurance, Medical Research, Spec. Rep., Ser. 43, 1919.
11. Longcope, W. T.; O'Brien, D. P.; McGuire, J.; Hansen, O. C., and Denny, E. R.: J. Clin. Investigation **5**: 17 (Dec.) 1927.
12. Friedemann, U., and Deicher, H.: Ztschr. f. Hyg. u. Infektionskr. **108**: 334, 1928.

latinal streptococcus in the urine of some patients with scarlet fever by Trask and Blake [13] seem to prove that bacterial infections complicated by glomerulonephritis produce toxic substances which pass through the kidney into the urine. The glomerular capillaries are probably injured during the excretion of these toxic substances.

But this conception does not explain the fact that the glomerulonephritis in scarlet fever or that following tonsillitis comes during convalescence and not during the height of the disease, as manifested by fever, rash and the other symptoms of toxemia.

To explain this, Béla Schick [14] and later Longcope [9] suggested that the renal complication of glomerulonephritis depends on the development of a hypersensitive state (allergy) in the process of immunization to the primary infection. Attempts to produce glomerulonephritis experimentally in sensitized animals by Longcope and Lukens,[15] Duval and Hibbard,[16] Long and Finner [17] and Bell and Clawson [18] seem to bear out this contention. Further study, however, is necessary to determine whether the glomerular lesions produced are identical with the lesions in the human disease.

In line with these hypotheses we believe that (*a*) our patients were born with kidneys that were the *locus minoris resistentiae* and that (*b*) the glomerulonephritis of these patients was the result of a hypersensitivity of the kidney tissues to bacterial toxins, possibly from a sinusitis ("history of chronic nose trouble").

1749 Grand Concourse.

RADIATION SICKNESS

TREATMENT WITH NICOTINIC ACID

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In spite of increasing knowledge and improved technic in the use of roentgen rays, radiation sickness continues to be a major problem for those who are using high voltage therapy. With the addition of nausea and vomiting to the discomfort of those already suffering from cancer, it is not surprising that some patients prefer to discontinue their treatment rather than suffer this additional distress. The problem became manifest as soon as roentgen therapy was introduced and immediately various investigators attempted to find the cause and to formulate a treatment.

In 1907 Edsall and Pemberton [1] declared that the vomiting was toxic in origin, owing to products of decomposition from tissue destruction. Pfahler,[2] on the other hand, blamed gases produced by the spark of the machines and to some extent was supported by Friedman and Drinker,[3] who measured the ions and gases in treatment rooms and found that positive ions were predominant, with ozone and nitrous gases. They advocated better ventilation in treatment rooms and the use of masks; these measures have been tried here with but little success. Lange [4] in 1916 brought forward the acidosis theory that cellular disintegration or an increase in catabolic cellular activity gave rise to acidosis and radiation sickness. Sodium bicarbonate was recommended in treatment but was universally unsuccessful.

Hall and Whipple [5] in 1919 exposed animals to lethal doses of x-ray and noted an increase in nitrogen elimination and in the nonprotein nitrogen of the blood preceding death. They found epithelial injury in the mucosa of the intestine and suggested that injury to these cells was the cause of the general intoxication. Denis, Martin and Aldrich [6] obtained similar results in rabbits and found that reactions occurred only in animals in which some portion of the intestine was exposed. Irradiation of the intestine invariably gave severe intoxication, but therapy to the thighs, neck or chest produced no symptoms. Most of the rabbits showed acidosis with a fall in alkali reserve; therefore they concluded that, as well as intestinal damage, acidosis plays a part in the reaction. Two years later Golden [7] was unable to confirm the acidosis theory: he reported four cases of radiation sickness in man and three in dogs but with no change in the plasma carbon dioxide combining power.

In 1907 Warthin [8] reported kidney changes—so-called roentgen nephritis, but McQuarrie and Whipple [9] in following this lead were able to produce fatal x-ray intoxication without the slightest disturbance of kidney function. Further work on the intestinal theory was then reported by Warren and Whipple,[10] who suggested that roentgen sickness resembled the intoxication of intestinal obstruction. Marked necrosis was demonstrated in the small intestine from a lethal dose of x-rays. A similar dose over the thorax had no effect. They found no changes in blood, bone marrow or lymphatic tissue, and the liver showed no disturbance in function and no change in the level of bile acid and bile pigment output.

Reduction of toxemia by surgical means was then advocated by Beck,[11] who was impressed by the theory of formation of toxic substances from a breakdown of cancer tissue. His method involved surgical exposure of the tumor, removal of as much as possible of the growth, and direct irradiation of the remainder through the open wound. By this method less radiation was required, less breakdown of tissue occurred, and toxic products drained into the dressing. He carried out this major procedure in more than a hundred cases with no resultant toxemia.

13. Trask, J. D., and Blake, F. G.: J. Exper. Med. **40**: 381 (Sept.) 1924.
14. Schick, Béla: Die Nachkrankheiten des Scharlach, Jahrb. f. Kinderh. **65**: 132, 1907.
15. Lukens, F. D. W., and Longcope, W. T.: J. Exper. Med. **53**: 511 (April) 1931.
16. Duval, C. W., and Hibbard, R. J.: J. Exper. Med. **44**: 567 (Oct.) 1926. Experimental Production of Acute Glomerulonephritis, J. A. M. A. **87**: 898 (Sept. 18) 1926.
17. Long, E. R., and Finner, L. L.: Am. J. Path. **4**: 571 (Nov.) 1928.
18. Bell, E. T., and Clawson, B. J.: Am. J. Path. **7**: 57 (Jan.) 1931.

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Dr. G. E. Richards, director of the Ontario Institute of Radiotherapy, Toronto General Hospital, gave the author permission to study these cases.

1. Edsall, D. L., and Pemberton, Ralph: The Nature of the General Toxic Reaction Following Exposure to X-Rays, Am. J. M. Sc. **133**: 426, 1907.
2. Pfahler, G. E.: The Cause and Prevention of the Constitutional Effects Associated with the Massive Doses of Deep Roentgentherapy, Am. J. Roentgenol. **3**: 310, 1916.
3. Friedman, H. F., and Drinker, Phillip: Radiation Sickness: Possible Cause and Prevention, Am. J. Roentgenol. **36**: 503, 1936.
4. Lange, S.: The Cause and Prevention of the Constitutional Symptoms Following Deep Roentgentherapy, Am. J. Roentgenol. **3**: 356, 1916.
5. Hall, C. C., and Whipple, G. H.: Disturbances in Metabolism Produced by Deep Massive Doses of Hard Roentgen Rays, Am. J. M. Sc. **157**: 453, 1919.
6. Denis, W.; Aldrich, M., and Martin, C. L.: Study of the Relative Toxic Effects Produced by Regional Radiation, Am. J. M. Sc. **160**: 353, 1920.
7. Golden, Ross: Alkali Reserve in Roentgen Ray Sickness, Arch. Int. Med. **30**: 629 (Nov.) 1922.
8. Warthin, A. S.: The Changes Produced in the Kidneys by Roentgen Irradiation, Am. J. M. Sc. **133**: 736, 1907.
9. McQuarrie, Irvine, and Whipple, G. H.: Study of Renal Function in Roentgen Ray Intoxication: Resistance of Renal Epithelium to Direct Radiation, J. Exper. Med. **35**: 225, 1922.
10. Warren, S. L., and Whipple, G. H.: Roentgen Ray Intoxication: 1. Unit Dose Over Thorax Negative; Over Abdomen, Lethal; Epithelium of Small Intestine Sensitive to X-Rays, J. Exper. Med. **35**: 187, 1922. 2. A Study of Sequence of Clinical, Anatomical and Histological Changes Following a Unit Dose of X-Rays, ibid. **35**: 203, 1922. 3. Speed of Autolysis of Various Body Tissues After Lethal X-Ray Exposures: The Remarkable Disturbance in Epithelium of Small Intestines, ibid. **35**: 213, 1922.
11. Beck, E. G.: Radio Toxemia: Its Cause and Suggestions for Its Prevention, J. Radiol. **3**: 301, 1922.

Sir Humphry Rolleston [12] agreed with the theory of a flooding of the circulation with proteins liberated by the destruction of cells. He felt that cellular change need not be localized in the intestine but that destruction of large growths in the neck or in any other region might be followed by constitutional symptoms. Corti and Pucher [13] disagreed with these observations and suggested that radiation sickness was not due to excessive cell catabolism. They found the most intense reaction in cases in which there was a low nitrogen output, and in three cases they also demonstrated a retention of chlorides. Cameron and McMillan [14] also found a retention of chlorides, particularly if the upper part of the abdomen was irradiated, and stated that the feeding of chlorides before and during treatment prevented or lessened the sickness. Schlagintweit and Sielmann [15] claimed that the decrease in blood chloride was due to dilution and stated that full relief was obtained by giving sodium chloride intravenously or by mouth.

In 1935 Holmes and Hunter [18] compared radiation sickness to catarrhal jaundice and, without sufficient evidence, suggested a temporary interference with liver function. They claimed that the reaction occurs when treatment is close to the liver and advocated an increased carbohydrate intake: candy between meals, fruit juices and lactose, and intravenous 5 per cent dextrose if necessary. In our experience an increased oral administration of carbohydrate is impossible to patients suffering from radiation sickness. In 1936 Richards and Peters [19] and Popp [20] found that pentobarbital sodium was effective in controlling a large number of cases. In the same year intramuscular liver was advocated by Young.[21]

Last year Martin and Moursund [22] reviewed the various claims as to the cause of radiation sickness and

TABLE 1.—*Blood and Urine Before and After Intensive Radiation Therapy*

			Blood								Urine	
				Van den Bergh								
Case	Before or After Irradiation	Carbon Dioxide Combining Power	Non-protein Nitrogen	Direct	Indirect	Units	Creatinine	Cholesterol	Chlorides	Blood Sugar	Bile	Urobilin
1	Before	63.3	34.0	0	0	0.0	1.26	0.189	475	0.111	0	0
	After	67.3	32.7	0	0	0.5	1.43	0.208	495	0.093	0	Trace
2	Before	62.4	32.0	0	0	0.4	1.50	0.169	515	0.093	0	0
	After	64.2	31.0	0	0	0.5	1.50	0.220	515	0.097	0	0
3	Before	68.3	34.8	0	0	0.0	1.20	0.245	505	0.091	0	0
	After	62.4	38.0	0	0	0.4	1.25	0.275	505	0.084	0	0
4	Before	59.5	23.0	0	0	0.4	1.15	0.275	515	0.099	0	0
	After	55.7	29.0	0	0	0.5	1.20	0.188	525	0.104	0	0
5	Before	62.4	32.5	0	0	0.0	1.34	0.220	495	0.108	0	0
	After	66.2	34.5	0	0	0.5	1.30	0.209	485	0.110	0	0
6	After	62.6	26.5	0	0	0.0	1.43	0.253	495	0.088	0	0
7	After	62.4	31.5	0	0	0.4	1.11	0.150	495	0.102	0	Trace
8	After	68.1	41.0	0	SL+	0.8	1.46	0.203	475	0.087	0	0
9	After	54.8	28.0	0	0	0.0	1.18	0.287	505	0.090	0	0
10	After	70.7	46.0	0	0	0.4	1.40	0.268	445	0.101	0	0

Andersen and Kohlmann [16] advanced the uremic theory. They found changes in the mineral content of the blood: blood calcium was increased; potassium was decreased at first and became normal in twenty-four hours; blood sodium was lowered for several days. They suggested that the alteration in blood mineral content was due to vagal stimulation and recommended calcium salts in treatment.

Dodds and Webster [17] investigated metabolic changes and found that irradiation of the head, thorax and limbs had no effect. Radiation of the abdomen and spleen, however, gave definite urinary and blood changes. A sudden fall occurred in urinary urea, uric acid, ammonia, titratable acidity, creatinine, total nitrogen and phosphates, with a return to normal in three days. The blood showed a marked decrease in urea content. These effects were attributed to a temporary inhibition of the functions of the principal abdominal glands, such as the liver, pancreas and kidneys. They found no evidence of nitrogen retention and were unable to support the uremic theory.

suggested that some portion of the intestinal tract or the parotid gland must be included in the treated area for symptoms to be produced. They pointed out that radiation sickness resembles the effect of vitamin B_1 deficiency and also that vitamin B_1 protects guinea pigs against small doses of abdominal radiation but that, as the doses are increased, it becomes less effective. Other investigators have suggested as causative factors a decrease in blood cholesterol, the presence of an alkalosis and the effect of allergic phenomena. These diverse and sometimes contradictory theories with regard to etiology indicate that the mechanism of radiation sickness is still undefined. With regard to treatment, pentobarbital sodium and intramuscular liver are the only remedial measures which have been found useful in this clinic.

In an effort to confirm some of the metabolic changes that have been mentioned, the blood of ten patients undergoing intensive radiation therapy over a period of weeks was studied; in five cases the blood was studied before as well as after treatment. Eight of the ten

12. Rolleston, Humphry: Acute Constitutional Symptoms Due to Radiations, Brit. M. J. **1**: 1, 1923.
13. Pucher, G. W.; Goltz, H., and Cori, K. F.: Biological Reactions of X-Rays: Effect of Radiation on Nitrogen and Salt Metabolism, Am. J. Roentgenol. **10**: 738, 1923.
14. Cameron, A. T., and McMillan, J. C.: Chloride Metabolism in Roentgen Ray Therapy, Lancet **2**: 365, 1924.
15. Schlagintweit, E., and Sielmann, H.: Roentgen Ray Acute Intoxication, Klin. Wchnschr. **1**: 2136 (Oct. 21) 1922; abstr., J. A. M. A. **79**: 2257 (Dec. 30) 1922.
16. Andersen and Kohlmann: Experimentelle Untersuchungen über die Ursachen des Roentgenkaters, Fortschr. a. d. Geb. d. Roentgenstrahlen **30**: 148, 1922 (quoted by Dodds and Webster [17]).
17. Dodds, E. C., and Webster, J. H. D.: Metabolic Changes Associated with X Ray and Radium Treatment, Lancet **1**: 533, 1924.
18. Holmes, G. W., and Hunter, F. T.: Management of Roentgen Sickness, New England J. Med. **212**: 308, 1924.
19. Richards, G. E., and Peters, M. V.: Nembutal in Treatment of Radiation Sickness, Am. J. Roentgenol. **35**: 522, 1936.
20. Popp, W. C.: Nausea and Vomiting Following Roentgenologic Treatment: Preliminary Report on Prevention by Pentobarbital Sodium, Proc. Staff Meet., Mayo Clin. **11**: 222, 1936.
21. Young, B. R.: Liver Extract as a Remedy for Roentgen Sickness, Am. J. Roentgenol. **35**: 681, 1936.
22. Martin, C. L., and Moursund, W. H.: Irradiation, Radiology **30**: 277, 1938.

patients were suffering from severe nausea and vomiting when the postirradiation blood was taken. Table 1 shows the results of blood and urinary examination in these cases.

No evidence of nitrogen retention was found, the level of nonprotein nitrogen and creatinine in the blood being normal in the ten cases studied. The acidosis theory could not be confirmed, the serum carbon dioxide combining power remaining within normal limits. No evidence of liver damage was obtained from the blood, van den Bergh test or urinary bile and urobilin. Dextrose tolerance tests were attempted but had to be abandoned, as the patients could not retain the dextrose. However, fasting blood sugar levels were normal in all cases. Decreased blood cholesterol was obviously not the cause of radiation sickness in this series. Blood chlorides were also found to be within normal limits.

TABLE 2.—*Incidence of Radiation Sickness in Relation to Area Irradiated*

Area	Number of Patients	Patients Sick	
		No.	Per Cent
Abdomen	90	33	36.6
Chest	21	5	23.8
Head and neck	25	6	24.0
Extremities	3	0	0

In a similar group of cases, no significant changes were found in the blood sodium or potassium. Blood potassium levels were normal in nine of twelve cases after radiation therapy. Although the postirradiation blood sodium was low in eight cases, it was equally low in five of these before irradiation.

The necrotic changes observed [23] in the intestinal mucosa of animals subjected to lethal doses of x-rays were not found in human cases after high voltage treatment. Ten patients who died while receiving intensive therapy to the abdomen were examined post mortem and in no case was any macroscopic lesion of the intestinal mucosa observed.

TREATMENT

In 1938 Spies, Cooper and Blankenhorn,[24] while studying cases of pellagra, found that these patients excreted abnormal amounts of porphyrin in the urine, which diminished when nicotinic acid was administered. Later Spies, Bean and Stone [25] noted a similar porphyrinuria in five of seven cases of radiation sickness. Nicotinic acid in doses of from 200 to 1,000 mg. daily was administered to these patients, and the treatment was followed by a prompt cessation of nausea, vomiting, anorexia and headache in all seven cases and a return to normal of the urinary porphyrin.

It was decided to try this drug [26] in a series of cases under roentgen treatment at the Ontario Institute of Radiotherapy, Toronto General Hospital. This group includes only those cases of radiation sickness in which severe nausea or nausea and vomiting were present. In some cases in which there were large abdominal or mediastinal masses, the vomiting may have been initiated by factors other than high voltage therapy.

In the series were seventy patients, of whom nineteen were males and fifty-one females, the average age being 45 years. The sex incidence of radiation sickness was not determined, as two thirds of the male patients received radiation to the head and neck whereas the vast majority of female patients received abdominal therapy. Forty-two of the patients were in the hospital; the remainder received their treatment as outpatients. With the onset of the radiation sickness, patients were given 200 mg. of nicotinic acid three times daily. In four cases this resulted in rather severe reactions, flushing and burning of the skin and a feeling of intense heat. The dosage was reduced to 100 mg. twice or three times daily, following which only occasional slight reactions were observed. The powder was placed in half a glass of water and the patient instructed to sip it slowly over half an hour, stirring the mixture frequently. More recently we have used 30 mg. tablets, which have been administered in a similar manner.

RESULTS OF TREATMENT

In this series of cases a moderate to severe degree of radiation sickness occurred in 27.6 per cent of all the patients receiving high voltage therapy over a period of approximately six months. An additional group of 105 patients was treated with radium or teleradium; only two had nausea and vomiting and in one of these vomiting was initiated by the anesthetic. Owing to the relatively short period of exposure and the usual areas of application, radium would appear to play no prominent part in radiation sickness. The incidence of radiation sickness was greater in cases in which 400 kilovolt therapy was administered than in those in which 200 kilovolt was given, but the difference is not significant, as the first group includes most of the abdominal cases and those receiving more intensive treatment.

Following nicotinic acid therapy a result was classed as excellent if all symptoms were cured, good if vomiting stopped and some slight nausea remained, fair for cases in which vomiting was decreased to an occasional incident, and failure when the drug had little or no effect. Of seventy cases 27.1 per cent showed excellent results and 47.2 per cent good. In other words, the drug was definitely effective in 74.3 per cent of this group of cases. A fair result was obtained in 14.3 per cent, and in 11.4 per cent nicotinic acid failed in treatment. With regard to the failures in treatment, it would seem that the condition of the patient was a definite factor. Two of the failures were in cases of Hodgkin's disease, one with large abdominal masses and the other with massive mediastinal glands. Three of the group had primary cancer of the breast, one with

TABLE 3.—*Effect of Nicotinic Acid in Relation to Area Irradiated*

Area Irradiated	Result			
	Excellent	Good	Fair	Failure
Abdomen	13	19	4	5
Chest	1	5	3	2
Head and neck	4	7	0	1
Inguinal gland	0	2	0	0
Head and abdomen	1	0	1	0
Chest and abdomen	0	0	2	0

23. Hall and Whipple.[5] Warren and Whipple.[10]
24. Spies, T. D.; Cooper, Clark, and Blankenhorn, M. A.: The Use of Nicotinic Acid in the Treatment of Pellagra, J. A. M. A. **110**: 622 (Feb. 26) 1938.
25. Spies, T. D.; Bean, W. B., and Stone, R. E.: The Treatment of Subclinical and Classic Pellagra: Use of Nicotinic Acid, Nicotinic Acid Amide and Sodium Nicotinate, with Special Reference to Vasodilator Action and Effect on Mental Symptoms, J. A. M. A. **111**: 584 (Aug. 13) 1938.
26. The nicotinic acid was supplied by British Drug Houses (Canada) Ltd., Toronto.

secondaries in the hip and spine, another with secondaries in the spine and widespread secondaries in both lungs, and the third with widespread skeletal metastases. Another was a case of inoperable cancer of the ovary with large abdominal masses and secondaries in the omentum. In four of the cases which showed excellent results, nicotinic acid was discontinued after the symptoms disappeared. The vomiting returned but ceased when the drug was administered again. Several patients who returned for a second series of radiation therapy asked for the "capsules."

Porphyrins were estimated qualitatively in the urine according to the method of Beckh, Ellinger and Spies.[27] The porphyrins excreted are said to be coproporphyrins I and III, both of which are abnormal in porphyrin metabolism.[28] Of fifty-two cases on which porphyrin estimations were made, only ten showed a material increase in porphyrinuria; all but one of these returned to normal after the administration of nicotinic acid. Even when the excretion of porphyrin appeared to be within normal limits, in most cases it was decreased when nicotinic acid was given. However, in this series of cases the degree of radiation sickness and response to nicotinic acid therapy did not seem to have any direct relation to porphyrin excretion.

COMMENT

The cause of radiation sickness has not been determined, but the absorption of toxic substances from the breakdown of tissue cells would seem to be a justifiable theory. But the destruction of abnormal tissues is not necessary, as in four cases in this group sickness occurred in conditions such as therapy for sterilization. The psychic factor must always be kept in mind, though it would seem to play only a subsidiary part. A study of the cases in this series confirms the earlier reports that radiation sickness is more apt to occur when the abdomen is included in the area irradiated (table 2).

Although not reported in animal experiments,[28] true radiation sickness does occur in irradiation of the chest, head and neck; but a greater number of x-rays is required before sickness develops. Of fifteen patients who had radiation sickness with less than 600 roentgens, thirteen received abdominal therapy and two chest irradiation. Sickness following radiation therapy is not only more frequent in abdominal conditions but it occurs with less exposure.

The beneficial effects of nicotinic acid therapy would appear to have no relation to the area irradiated (table 3). Although in the majority of failures abdominal irradiation was given, it is also true that abdominal therapy was given in a similar percentage of cases showing excellent results; the area of application would not appear to be the major factor. As already pointed out, six of the eight cases in which failure resulted were complicated by widespread metastases which, no doubt, had an important bearing on the result.

The mode of action of nicotinic acid has not been determined. It is said to play some part in porphyrin metabolism, but in this series of cases no evidence was found which would relate radiation sickness to abnormal porphyrin excretion. Only a small percentage of these cases showed any considerable rise in porphyrin excretion, and this had no direct relation to the degree of sickness or to improvement with therapy.

27. Beckh, W.; Ellinger, P., and Spies, T. D.: Porphyrinuria in Pellagra, Quart. J. Med. 6: 305 (July) 1937.
28. Denis, Aldrich and Martin,[9] Warren and Whipple.[10]

Some explanation for this abnormal pigment metabolism may be found in the work of Rimington,[29] who observed that many states of fever or infection lead to an increased porphyrin output. The increased excretion is attributed to a disturbance of hematopoiesis or liver function. It has been shown that coproporphyrin I cannot be derived from a breakdown of red blood cells but must arise from derangement of hematopoietic processes in bone marrow. Coproporphyrin III has been found to be associated with some impairment of hepatic function such as cirrhosis of the liver or in toxic reactions such as may be caused by arsphenamine or lead. The same author [30] suggests that urinary porphyrin can be taken as an index of the extent of normal hematopoietic activity and that disturbances of this activity will lead to the excretion in the urine of abnormal quantities and types of porphyrin. Such disturbances might well occur during intensive irradiation of areas involving the bone marrow.

CONCLUSIONS

Radiation sickness continues to be a major problem in roentgen therapy. Distressing symptoms of nausea and vomiting develop in 27.6 per cent of patients receiving high voltage radiation. The cause and mechanism of the reaction are unknown and no evidence has been found to support theories regarding such etiologic factors as nitrogen retention and uremia, acidosis, alkalosis, liver damage, hypoglycemia, decreased blood cholesterol, retention of chlorides or injury to the intestinal epithelium.

Radiation sickness not only occurs more frequently in abdominal therapy but it also occurs with less exposure to x-rays. True radiation sickness does occur, however, in irradiation of other parts of the body.

Results from nicotinic acid therapy would appear to be better than from pentobarbital sodium or intramuscular liver. Ease of administration with no unpleasant after-effects is definitely advantageous. In those cases which failed to respond to nicotinic acid therapy the condition of the patient and the advanced stage of the disease seemed to be greater factors than the particular area irradiated.

The mode of action of nicotinic acid has not been determined, but no direct relation to porphyrin metabolism could be shown. It is suggested that the abnormal excretion of porphyrin is related to a disturbance of hematopoietic activity or of liver function.

100 College Street.

29. Rimington, Claude, and Hemmings, A. W.: Porphyrinuria Following Sulfanilamide: Sulfanilamide Dermatitis, Lancet 1: 770 (April 2) 1938.
30. Rimington, Claude: Disturbances of Pigment Metabolism Following Administration of Drugs of the Sulfonamide Series and Simpler Related Substances, Proc. Roy. Soc. Med. 32: 351 (Feb.) 1939.

Blood Groups in Relation to Legal Medicine.—By means of the genetic formulas and these general rules, based on experimental evidence, it is possible in a certain proportion of putative matings to establish the fact that a child could not be the offspring of a certain individual. The converse, however, is not true. In no instance can it be shown that an individual is the parent of a given child. But it is apparent that negative evidence of this sort is of great value in legal controversies involving questions of paternity or in cases where the identity of a child is in doubt, such as have occurred as a result of interchange in the infant wards of hospitals or intentionally by wetnurses.—Zinsser, Hans; Enders, John F., and Fothergill, LeRoy D.: Immunity Principles and Application in Medicine and Public Health, New York, Macmillan Company, 1939.

ENVIRONMENTAL FACTORS IN RHEUMATOID ARTHRITIS

A STUDY OF THE RELATIONSHIP BETWEEN THE ONSET AND EXACERBATIONS OF ARTHRITIS AND THE EMOTIONAL OR ENVIRONMENTAL FACTORS

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Rheumatoid arthritis is a chronic disease of unknown etiology. It respects neither age, sex, race nor social position, although it does affect women more frequently than men, white persons more often than Negroes and the poor more commonly than the rich. In addition to the articular involvement, which is usually symmetrical and more likely to affect small joints first, the patients complain of constitutional, vasomotor and neurologic symptoms. These associated symptoms frequently precede those referable to the skeletal system and in many instances persist throughout the course of the disease. Rheumatoid arthritis may be unrelentingly progressive from the onset but is more commonly characterized by remissions and relapses of varying degree and duration. In a small percentage of cases the remissions are complete and of years' duration; in the majority they are incomplete and short lived with recurrent symptoms and telltale evidence of previous fascial or joint involvement persisting. Irrespective of the initial course of the disease, increasing evidence of progression occurs with the passing of time, leading in many instances to partial or complete incapacitation. The economic and social problems resulting from this chronic, progressive disease are multitudinous; but they are more fully realized today than ever before. In consequence, much time and effort are being expended in the hope of obtaining a more complete biologic picture of the disease entity called rheumatoid arthritis and the patients affected.

Previous workers have offered many theories concerning the cause of rheumatoid arthritis. No one of these has been accepted, in most instances because of insufficient proof, in others because removal or correction of the supposed offending factor has failed to arrest or cure the disease with any regularity. Doubtless many of these erroneous theories represent failure to distinguish sharply between etiologic cause and contributing or precipitating factors. There is good reason to suspect that various factors may predispose the patient to an attack of rheumatoid arthritis. From the evidence at hand, however, it would appear that in addition there is necessary an x factor, the principle etiologic agent. This is as yet unknown.

In most cases of rheumatoid arthritis one can demonstrate many clinical and laboratory abnormalities which serve as evidence that the disease may be infectious in origin. The majority of workers favoring this theory consider that the hemolytic streptococcus plays an important etiologic role, again without adequate proof. Adherents to this theory are therefore interested in the incidence of upper respiratory infections preceding the onset or an exacerbation of the disease. Experience teaches the physician that a history of such infections is not obtained with any regularity. In fact, one encounters many cases in which it is impossible to establish the existence of any of the usual preceding, contributing factors. This failure to elicit more regularly one of the usual precipitating factors impresses on the student of the disease the necessity of studying the patient as a biologic unit. A better description is needed of the host and the many environmental factors with which he has to contend.

Prior to the advent of bacteriology as an established science and the many infectious theories concerning the etiology of rheumatoid arthritis, much was written concerning the neural theory. Notable among the earlier workers who advocated such a relationship were Ord,[1] Spender,[2] Wichmann,[3] Garrod,[4] Jones,[5] Bannatyne,[6] Fuller,[7] Duckworth,[8] Osler,[9] Hyde[10] and McCrae.[11]

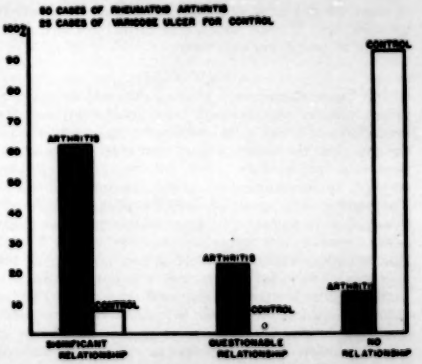

Chart 1.—Temporal relationship between the environmental stress and the onset or exacerbations of rheumatoid arthritis. It will be noted that a significant relationship was encountered in a large number of the arthritic patients and rarely in the control group (patients with varicose ulcers).

Included among the adherents to the neural theory were those who postulated the existence of lesions of the central nervous system (chiefly because of the symmetrical joint involvement) as well as those who attributed the onset or exacerbation to some type of

Other terms used to designate rheumatoid arthritis or synonyms commonly used are proliferative arthritis, atrophic arthritis, chronic infectious arthritis and type I arthritis.

From the Psychiatric, Medical and Social Services of the Massachusetts General Hospital, the Departments of Medicine and Diseases of the Nervous System, Harvard Medical School, and the Massachusetts State Department of Public Health. The work has also been aided by the Commonwealth Fund.

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4. Garrod, A. E.: A Treatise on Rheumatism and Rheumatoid Arthritis, London, Charles Griffin & Co., 1890.
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emotional shock. Subsequently others [12] have suggested that emotional shock, anxiety and worry play an important role.

Specific examples are recorded in which rheumatoid arthritis came on immediately after some disturbing emotional experience.[13] In some instances no other precipitating factor was disclosed. Experiences of this sort occurring in a disease of unknown etiology, plus the fact that many of the patients complain of vasomotor, neurologic, constitutional, cardiorespiratory and gastrointestinal symptoms not unlike those encountered in the psychoneuroses, has been largely responsible for the renewed interest displayed by internists and psychiatrists concerning this aspect of the person with rheumatoid arthritis.[13] Other workers [14] have mentioned mental strains and "nervousness" as being related to the onset and relapses.

Most physicians who have cared for patients with rheumatoid arthritis have observed such temporal relationships between onset of arthritic symptoms and emotional crises. In some instances the exacerbations and remissions run remarkably parallel to changes in the environmental stress under which the patients live. Isolated personal experiences are frequently recounted at meetings. Such examples carry little weight except with the physician who has seen the phenomenon. He knows that there is a relationship but cannot prove it. It becomes a matter of personal conviction without adequate evidence. Because of such personal experiences, a simple study was planned, merely to find out how often there was a relation in time—a synchronism of social factors and arthritic symptoms.

METHODS

For this study fifty patients with typical rheumatoid arthritis were interviewed by a psychiatrist or a social worker, as chance brought them to a special follow-up clinic or to the hospital wards. They comprise a part of a series of 300 cases that have been studied in great detail and observed over a period of years, as long as eight years in some instances. An hour or longer was spent with each patient. Although the patient was encouraged to talk in his own way about his life, the questioner had points to be covered, which were the patient's birthplace, for the interest of its being American or foreign; the place of the patient among his siblings, with a brief description of the living conditions into which he was born; the age and circumstance of the beginning of school life; early emotional reactions; work history; age and circumstance of marriage; birth of children and early adjustments in married life; life events and adjustments, and the present situation. Each patient was asked if he had ever had a nervous breakdown.

The facts obtained were written on a life chart such as is used by Professor Adolf Meyer [15] at the Johns Hopkins Hospital. At some subsequent time the medical data from the hospital record were entered on the same life chart. This included all past illnesses as well as prodromal arthritic symptoms, onset of the arthritis, remissions and relapses and condition at the time of the interview. These medical facts were checked by Dr. A. O. Ludwig of the arthritis clinic.

The important thing shown when the data are recorded on such a life chart is the chronological relation between different events in the patient's life. The severity of the arthritis is indicated in black in the middle column of the life chart. Thus one can tell roughly how often the environmental burdens occurred at the time of the onset or an exacerbation of the arthritis. Obviously no definite limitation of time can

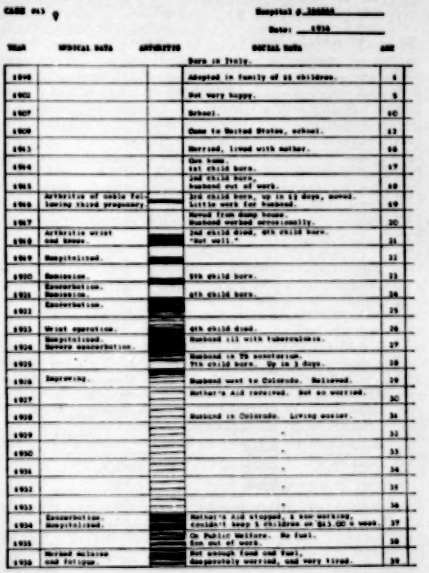

Chart 2.—Life chart of patient 13, a woman.

be set which divides the significant from the insignificant relation. In general, events falling in the same year might be judged as having a relationship. In some instances the patient himself emphasized this relationship in telling his own story. This method of study is not psychologic in any deep sense, it is more sociological because the work was done too superficially and too quickly to give any psychologic picture of the patient other than an impression of the personality concerned.

OBSERVATIONS

From a study of the life charts and the records, it seemed justifiable to divide the patients into three groups: (1) those cases which appeared to have a close temporal relationship between the life stress and the arthritis, (2) those cases in which the relationship was doubtful and (3) those cases which seemed to have no such relationship (chart 1).

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The first group, which is made up of cases in which such a temporal relationship was observed, consists of thirty-one patients: ten men and twenty-one women. Among the ten men, stories of financial stress were present in every case, with little reference to factors other than "tough times," "no work" or "on relief." These accounts corresponded in point of time with the onset or exacerbation of the arthritis. Worry over financial responsibilities and difficulties was no special perquisite of the men. In eleven of the twenty-three histories obtained from women the major burden was financial stringency because of the husband's inability to find work, followed often by his illness, which added the strain of nursing. This frequently led to borrowing money or using savings, with poverty as the next step

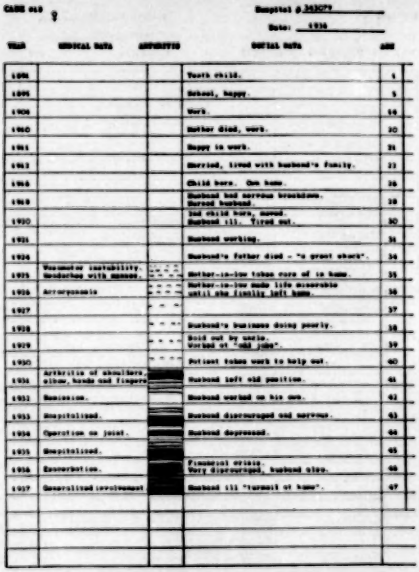

Chart 3.—Life chart of patient 18, a woman.

and then recourse to public welfare. There were seven cases in which family worries were important, not associated with poverty. Six cases showed combinations of financial and family worry where it is difficult to say which is the more important. In all there were fourteen cases in which family worry was conspicuous. In five marital discord was observed, but two of these had financial burdens as well. In seven cases the loss of a parent or spouse was observed prior to an exacerbation in four instances and before the first symptoms in three others. In three histories there were reports of unfaithfulness of a married partner. In these cases the emotional upset experienced by the patient appeared concurrently with the disease. In two instances the strain was due to living with relatives-in-law.

In the second group, which is made up of those cases which seem questionable as to any significant relationship between the arthritis and the social history, there are twelve histories. The same underlying factors of uncertainty of work, with the consequent worry about a livelihood for their families, appear in the histories of both men and women of this group, but there is not so much evidence of temporal relationship between the events of the social history and the exacerbations of the arthritis as in the thirty-one cases just discussed. In some instances the relationship is more suggestive than in others. The younger patients and those with early onset show the least relationship.

The third group of seven cases give no indication of relationship between the social and arthritic history. In this group are some of the youngest patients, the events of whose lives seem to have no relationship to the social history.

"CONTROL" GROUP

It is recognized that a biologic experiment should always be "controlled." This is especially true when the living organism studied is man, with all his varied activity and complex environment. In this instance it was decided to choose, for controls, patients entering the hospital because of varicose ulcers. In order to have the two groups comparable, the sex and age distribution was approximated as nearly as possible. Their social status was much the same. The interviews were carried out in exactly the same way as were the interviews with the arthritic patients. Twenty-five patients were studied. Although the number was small, the trend was conspicuous enough to suggest strongly that we were dealing with a different type of person (chart 1). In only three was there any coincidence of onset of ulceration and social stress. There were no cases that seemed to fall in the middle or questionable group.

COMMENT

This study was undertaken, as stated in the introduction, in order to determine whether or not there existed a temporal relationship between environmental stress and the onset or exacerbations of rheumatoid arthritis. It was thought that, by employing a relatively simple method such as the Meyer life charts, the synchronism between social and medical events might become apparent if it existed. Examination of the life charts reveals that such relationships are demonstrable, whereas they might have been overlooked had they been recorded in the conventional medical record (charts 2 and 3). Our failure to elicit similar temporal relationships in the control series adds to the probability that such relationships represent more than coincidences. Certainly the results obtained from this relatively simple study suggest that more detailed psychologic studies should be made. A statistical analysis of more detailed studies on a large series of cases correlated with the many other factors should make it possible to evaluate more correctly the exact etiologic role of such environmental and psychic factors in rheumatoid arthritis. Irrespective of the results obtained a better definition of the host of this chronic disease and the many environmental factors (social and otherwise) with which he has to contend will result.

CONCLUSION

Environmental stress, especially poverty, grief and family worry, seem to bear more than a chance relationship to the onset and exacerbations of rheumatoid arthritis. The relative importance of these factors in the etiology of rheumatoid arthritis can be established only by a much more detailed psychiatric study on a large group of such patients.

Clinical Notes, Suggestions and New Instruments

AIR EMBOLISM FOLLOWING THE KNEE-CHEST POSITION

R. L. REDFIELD, M.D., AND H. R. BODINE, M.D., BUFFALO

Air embolism in obstetrics was first considered in 1829, when it was thought that the entrance of air into the uterine sinuses and veins might be a source of danger in recently delivered women. Two English physicians, Cormack in 1850 and George May in 1851, each reported three cases of air embolism following delivery. Since that time several instances of air embolism have been recorded which occurred during the performance of criminal abortion, during the use of uterine douches to loosen adherent retained placental tissue and after normal spontaneous deliveries. Patients with placenta praevia and bleeding during the latter half of pregnancy have been treated with an attempt at version and, at about the time the foot was drawn through the cervical canal, they have collapsed and died. The only cause of death to be found on the postmortem examination was air embolism.[1]

In recent literature we have found instances of air embolism that were considered rather unusual because their onset was relatively late in the puerperium. In 1936 Quigley and Gaspar [2] described a fatal case of air embolism in a nonipara aged 26 which occurred on the eighth postpartum day after she had been in the knee-chest position for five minutes. She had delivered spontaneously and had an afebrile and uncomplicated postpartum course. She had done the knee-chest exercise twice for thirty minutes the day previous to her death. Four hours after she died an autopsy was done, which showed a moderately subinvoluted uterus containing small pieces of retained placental tissue with surrounding hemorrhages and blood clots. The right side of the heart was dilated with air and the right ovarian plexus was distended, owing to abundant air bubbles.

Another case was reported by Stroh and Olinger [3] of Seattle in April 1938. A decipara aged 39 had had a normal spontaneous delivery followed by an uneventful puerperium. On the seventh day, after assuming the knee-chest position for the first time, she suddenly collapsed and died in from four to five minutes. The postmortem examination revealed extensive air embolism of the right ovarian vein, inferior vena cava and chambers of the right side of the heart. The main portion of the pulmonary artery contained only fluid blood mixed with bubbles and no clotted blood.

REPORT OF CASES

Mrs. H. L., a secundigravida aged 33, a private patient, was admitted to the Millard Fillmore Hospital in Buffalo Aug. 1, 1936, and delivered of a male infant weighing 6 pounds 8 ounces (2,948 Gm.) spontaneously without any complication. After an uneventful postpartum course she was up and walking about on the tenth day. The following day, the eleventh post partum, she entered into a convulsion five minutes after completing the knee-chest exercise. The impression of the one who first saw her was that she was having an eclamptic seizure, and she was given one-fourth grain (0.016 Gm.) of morphine sulfate and 2 cc. of 50 per cent magnesium sulfate hypodermically. This was followed by the administration of coramine. Twelve minutes after the onset of the convulsion the patient died.

The pathologist's report on the autopsy was as follows: The essential conditions at autopsy were that frothy blood was found in the chambers of the right side of the heart but very little in the chambers of the left side. The lungs showed numerous large blebs of air, and microscopic sections showed alveoli distended with air.

The uterus was filled with blood clots. Microscopic sections showed that some of the sinuses contained blood while others were empty and gaping.

All the large uterine veins contained air with a frothy appearance of the blood. This was especially marked in the iliac veins and the inferior vena cava.

The summary presents the probable source of air embolism as being through the uterine wall, possibly a softened area such as the site of the attached placenta, following the knee-chest position with ballooning of the vagina and an inrush of air into the uterine wall.

A second case of air embolism, occurring in the Millard Fillmore Hospital in October 1938, is described as follows:

E. M., a septigravida aged 30, was admitted to the obstetric outpatient department July 29, 1938. Her past history was negative for serious illnesses except that she had scarlet fever when she was a baby. The operative history was negative. She had previously had five full term pregnancies and one miscarriage without complications. All of her former deliveries were normal and uncomplicated.

Her last normal menstrual period was Feb. 15, 1938, and from that date to July 29 she had experienced irregular vaginal bleeding lasting about two days at a time and occurring about every three weeks. In the latter part of June she had what she termed a severe hemorrhage, after which she passed small clots infrequently. Her last bleeding had occurred about ten days prior to her coming to the clinic. This was accompanied by cramping pains, which subsided after some blood was passed. There were no toxic symptoms and her only other complaint was varicosities of the legs.

Owing to her history of bleeding, she was started on injections of an anterior pituitary-like substance, 1 cc. every ten days.

The second visit to the antepartum clinic was August 9. Her blood pressure was 106 systolic 72 diastolic. The Wassermann and Kline reactions were negative. Urinalysis was negative. The basal metabolic rate was plus 8.4 per cent. Pelvic measurements were normal. There had been no bleeding since her first visit.

September 21 she reported that there had been bleeding for thirty-six hours, beginning September 14, which was accompanied by cramping in the lower part of the abdomen. She went to bed for two days and the symptoms ceased. She was instructed to take thyroid 1 grain (0.065 Gm.) every other day.

October 5 she stated that there had been no bleeding since the previous visit. Her total gain was 40 pounds (18 Kg.).

The patient was admitted to the hospital on October 22 at 11:15 p. m., after being in labor for an hour and fifteen minutes. At the onset of the uterine contractions she had noticed considerable bloody discharge. Vaginal examination revealed that the cervix was dilated four fingerbreadths and completely effaced. The fetal heart tones were in the right lower quadrant and of good quality. The blood pressure was 115 systolic 70 diastolic. The position of the sagittal suture and fontanels indicated an occipitodextrotransverse position.

At 12:15 a. m., October 23, the cervix was dilated five or six fingerbreadths. The patient was delivered by version and extraction at 1:17. The infant was a normal 7 pound 7 ounce (3,374 Gm.) female. The total duration of the labor was three hours and seventeen minutes. Because of the history of bleeding during the pregnancy, the uterus was explored during the version for the position of the placenta, and it was found to be located high on the posterior wall. The placenta was delivered intact and there was no evidence of premature separation, as might be indicated by old clots or darkened areas on the uterine surface of the placenta. There was evidence of chronic cystic cervicitis, so the margins of the cervix were debrided and the cervix was repaired bilaterally.

Ergotrate (a maleate of an ergot base) 1/120 grain (0.2 mg.) was given intramuscularly immediately after the placenta was delivered, and the same dosage was given by mouth every eight hours for six doses thereafter because of her parity and the fact that the patient had a rather atonic uterus.

The catheterized specimen of urine obtained at the time of delivery showed a faint trace of albumin and a few leukocytes. The blood count postpartum was hemoglobin 74 per cent and erythrocytes 3,700,000.

From the Departments of Obstetrics and Pathology, Millard Fillmore Hospital.

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The postpartum course was uneventful and afebrile, the highest temperature being 99 F. On the seventh day she did the knee-chest exercise for three minutes. At 9:20 a. m. on the eighth day she did the knee-chest position for five minutes. On coming down from this position, the patient gasped and then complained of feeling faint. Generalized clonic movements promptly developed and her respirations became stertorous and gurgling. She was seen immediately by two house physicians, who found her in a spastic attitude with the knee and elbow joints extended and her jaws firmly set. There was extreme pallor in the extremities, and her face and nail beds were cyanotic. Respirations became very slow and finally gasping. She then became relaxed and pulseless with no action of the heart detected on auscultation. At 9:40 approximately fifteen minutes after completing the knee-chest exercise, she died. Epinephrine was injected into the heart muscle with no response.

An autopsy was performed and the pathologist's report was as follows:

The body was well developed and well nourished. There was no rigor mortis, lividity, edema or jaundice and the body was still warm. There were no special marks of interest to be seen. Both breasts were well filled and lactating.

The pupils were equal and regular. The nose, mouth, throat and ears were normal on examination. The neck showed nothing of interest.

The thorax and abdomen were opened in the usual manner. The organs and blood vessels were carefully examined before an incision was made into any organ or before any part was removed.

Examination of the venous system revealed the presence of air under pressure in the right side of the heart and the beginning of the pulmonary artery. When an incision was made into the pulmonary artery and the right side of the heart an audible escape of air was noticed. Frothy blood also exuded from the incision, but the quantity of blood itself was markedly diminished. The left side of the heart was empty and did not contain blood. The inferior vena cava and the iliac, renal, ovarian and uterine veins were all distended with air and frothy blood.

The uterine veins were filled with air bubbles and any manipulation of the uterus or compression caused the further entry of air into the veins. Bubbles of air could be seen entering the vessels as this was done. The uterus itself was boggy and enlarged. The fundus reached almost to the level of the umbilicus. As the uterine wall was carefully opened, air bubbles escaped from the cut surface. Further section showed a mass of membrane attached to the posterior uterine wall and a blood clot approximately 2½ inches in diameter with wide open venous sinuses of the uterus beneath. These sinuses were easily demonstrated by probing. All veins, with the exception of the portal system veins, were air containing to such a degree that distention was the proper term for description. No thrombi or postmortem clots were found. This unusually careful examination of the venous portion of the circulatory system was made because of the history of the patient's having assumed the knee-chest position just previous to her sudden death.

The thoracic organs were examined next. No pleural fluid or adhesions were found on either side. The right lung weighed 440 Gm. and the left lung 450 Gm. The tissue appeared well aerated and was grossly normal in appearance. Cut sections revealed the presence of numerous small areas that were darker than the surrounding tissue and appeared hemorrhagic. No air embolism in the lung tissue could be demonstrated.

The heart was of normal size and consistency. The chambers of the right side of the heart contained air. Those on the left side were free of both air and blood and were in a state of contraction. The heart musculature was a homogeneously beefy red. All valves appeared normal and no sclerosis of vessel orifices could be seen. The measurements of both musculature and heart valves were normal: mitral valve, 9 cm.; aortic valve, 7 cm.; tricuspid valve, 11 cm.; pulmonary valve, 8 cm.; thickness of left ventricle, 1.2 cm.; thickness of right ventricle, 0.3 cm.

The abdominal organs were essentially normal except for the venous system and the uterus, as previously mentioned.

The liver weighed 2,130 Gm. and was slightly darker than normal. Cut sections showed nothing of further interest.

The gastrointestinal tract was entirely normal from the esophagus to its termination.

The spleen weighed 275 Gm. and was the color of a dark nutmeg on cross section. No unusual gross characteristics were observed.

The left kidney weighed 145 Gm. and the right kidney 230 Gm. Neither kidney was grossly abnormal. Both capsules stripped readily. The ureters were normal, as was the bladder.

The uterus was approximately the size of two fists and reached to just below the umbilicus. It was flabby and doughy on palpation and contained membranous tissue mixed with a partially organized blood clot of the size and appearance previously described. The ovaries and tubes showed nothing of interest. The vaginal vault was opened and the cervix showed a stellate incision with sutures still in place.

Microscopic studies added nothing except to confirm the presence of membrane elements in the uterus and also to show a very moderate focal infarction of the lung tissue. Fatty metamorphosis of the liver was present.

The mechanics involved appeared to depend on the following factors: (1) retained membrane tissue, (2) failure of the uterus to involute properly, (3) the knee-chest position, allowing ballooning of the vagina with air and an increase of the air pressure within the uterine cavity and possibly ballooning of an atonic uterus itself, and (4) entry of air into gaping uterine sinuses. These four factors were present in this case, so that the complete story is that of air entering the uterine sinuses, held open by retained membrane and partially organized blood clot, following the knee-chest position with its attendant increase of the intravaginal and intra-uterine air pressure. Air then entered the uterine veins, iliac veins, inferior vena cava, ovarian and renal veins and the right side of the heart itself. The presence of air in all these veins including the uterine wall is demonstrated in this instance.

The mechanics of air embolism can be compared with that of a bellows. A woman in the knee-chest posture, having the labia separated, permits an inflow of air to the vagina and in some cases the uterus. When she descends from the posture the labia are closed and, with the collapse of the vaginal walls and the uterus, air is forced into the open uterine sinuses if it cannot escape through the vaginal orifice below.

COMMENT

Characteristics common to these cases of air embolism are multiparity and the performance of the knee-chest exercise immediately prior to the accident, and in all but one there was retention of blood clots or secundines. According to the literature, air embolism is a rare occurrence in the late puerperium of obstetric patients, but if something could be done to avoid these catastrophes another step would be made toward eliminating a fraction of maternal mortality.

Multiparity may be a predisposing cause of these accidents owing to the fact that the uterus is slower in its involution and does not contract as readily as in the primipara. This makes for the collection of small quantities of blood in the uterine cavity and the formation of clots which can act as temporary obstacles to the closure of uterine sinus openings. When these clots later break away they leave open veins which may serve as the portal of entry for air. This influence of multiparity is one over which there is little control unless it might be the administration of oxytocics during the puerperium, and this was done for the patient whose case we have reported.

The retention of membrane or small pieces of placenta in the uterus is partially avoidable by proper and careful technic in the conduct of the third stage. We believe that the course of the third stage should not be hurried. Even with the most careful attention to this phase of a delivery one cannot always know whether a small fragment of membrane remains in the uterus unless it is large enough to suggest its presence by causing some unusual amount of bleeding. Emphasis is warranted on the inspection of the placenta for any small missing portion.

The use of the knee-chest posture is a factor in the cause of air embolism over which there is complete control. We feel that this case, with the three others referred to, should leave

little doubt in any one's mind that the knee-chest exercise was the exciting cause of air embolism. The knee-chest position is a time honored procedure in the puerperal conduct of obstetric patients, but its benefits are very dubious. Many women who have meticulously followed their physician's instructions in the performance of the knee-chest exercises are found to have retroverted uteri. Postural exercises may be a help toward restoring the uterus to its normal position, but it is generally conceded by obstetricians and gynecologists that this replacement is dependent more on the inherent elasticity of the fibrous tissues making up the supportive structures of the uterus and the bladder. The elimination of trauma to the parturient woman, as far as this is compatible with good obstetric management, will probably do more to improve uterine displacement than all the various exercises in the puerperium. If there is any benefit to be gained by postural maneuvers, it would seem better merely to have these patients lie on the abdomen for longer periods of time than to have them assume the more difficult knee-chest posture for a brief period two or three times a day.

Our observation of the two cases of air embolism following the knee-chest position in our hospital and the reports of the other two cases in the recent literature forces us to conclude that there is a definite element of danger in such postural exercises whereby air is allowed to enter the vagina and probably the uterus in more instances than one realizes. Because of this danger we advocate discontinuing the knee-chest exercises, at least in the early weeks of the puerperium.

875 Lafayette Avenue.

APPARENT CURE OF PRIMARY CARCINOMA OF THE LUNG BY PNEUMONECTOMY

CASE REPORT OF A FIVE YEAR FOLLOW-UP STUDY

RICHARD H. OVERHOLT, M.D., BOSTON

It has been demonstrated that an entire lung in man may be excised successfully. It has also been shown from early follow-up studies that such a procedure is not necessarily incompatible with a reasonable degree of good health. An increasing number of patients with primary carcinoma are being placed under the care of a thoracic surgeon at a time when it is impossible to demonstrate that the tumor has spread beyond the lung by our present methods of investigation. Thoracic exploration is being carried out more frequently, and my own experience suggests that the number of resectable lesions is steadily increasing. It has not been demonstrated, however, how many of these cases, which seem operable and in which no gross evidence of mediastinal extension has taken place when surgical exploration is carried out, will eventually result in death from metastatic disease. Many years will be required to answer this question. Since the first successful operations of this kind were done as recently as 1933 by Graham,[1] Rienhoff [2] and Overholt,[3] records of more than a hundred other cases can be found in the literature.[4] These publications concerned themselves with reports on the operation itself and immediate results. Obviously, appraisals of late results are of vital importance. Up to the present time a record has not appeared in the literature of the condition of a patient five years after pneumonectomy for primary lung cancer.

REPORT OF CASE

Mrs. A. T., aged 37, presented herself Dec. 2, 1938, for a follow-up examination, this date being five years and one month after she had been treated for a primary bronchiogenic carcinoma of the right lung by right pneumonectomy.

Patient's Report.—The patient said that she had been in good health since her discharge from the hospital. She had not had a single day's illness since that time and her only period of confinement was a brief one following contusions suffered in an automobile accident in 1936. She had been exceptionally free of colds. Symptoms such as cough, expectoration or hemoptysis had not been experienced since the operation. The patient considered that she was able physically to accomplish as much as she did before the onset of symptoms in the spring of 1933. After prolonged exertion she occasionally has some discomfort in the back and right shoulder. The patient does all the housework required for a family of four. Going up and down stairs caused no dyspnea. Daily walks of from 1 to 2 miles were taken for exercise.

Examination.—The general appearance and the state of nutrition of the patient were good. Fully dressed, there was no apparent deformity (*fig. 1*). The color of the skin was normal

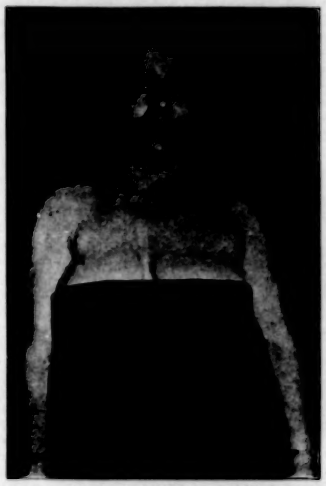

Fig. 1.—Patient five years and one month after treatment for primary carcinoma of the lung by total removal of the right lung.

and there was no cyanosis. The fingers and toes were not clubbed. The general physical examination was essentially negative except for the chest. There was no evidence of metastatic disease. There were no enlarged lymphatic glands. The right side of the chest was smaller than the left, and healed anterior (pneumonectomy) and posterior (thoracoplasty) scars were present. There was a slight thoracic scoliosis with convexity toward the right. The shoulder motion was not limited. The trachea was in the midline. Expansion of the right side of the chest was limited. Percussion and auscultation of the left side of the chest revealed no abnormality. Breath sounds over the right side of the chest had a bronchial quality diminishing in intensity as one listened at greater distances from the midline. The position of the heart and its sounds were normal. The weight was 150 pounds (68 Kg.) as opposed to 88 pounds (40 Kg.) at the time of operation. The blood pressure was 142 systolic, 90 diastolic, pulse 96, respiratory rate 18. After the patient had gone up two flights of stairs (thirty-four steps) the pulse rose to 118 and the respiratory rate to 22. Within four minutes these rates returned to the resting level. The vital capacity was 1,050 cc. as compared to the preoperative test of 1,600 cc.

An electrocardiogram was interpreted by Dr. Lowrey F. Davenport as follows: The rate was 93; the rhythm normal. The auriculoventricular and interventricular conduction time

From the New England Deaconess Hospital, Boston.

1. Graham, E. A., and Singer, J. J.: Successful Removal of an Entire Lung for Carcinoma of the Bronchus, J. A. M. A. 101:1371 (Oct. 28) 1933.

2. Rienhoff, W. F., Jr.: Pneumonectomy: A Preliminary Report of the Operative Technic in Two Successful Cases, Bull. Johns Hopkins Hosp. 53:390 (Dec.) 1933.

3. Overholt, R. H.: Total Removal of Right Lung for Carcinoma: Report of a Successful Case, J. Thoracic Surg. 4:196 (Dec.) 1934.

4. Overholt, R. H.: Pneumonectomy for Malignant and Suppurative Disease of the Lung, to be published.

was normal. In lead 3 there was a phasic variation in the amplitude of the QRS complex. On expiration the QRS complexes became almost iso-electric. On inspiration the amplitude was greater and varied from plus 4 to plus 9 mm. T_3 was slightly inverted. In lead 4 there was also the same phasic variation in the amplitude of the QRS waves with respiration along with changes in the T wave from upright, to flat, to inverted. The exact phase of respiration was not determined in lead 4. The conclusion was that these changes were consistent with a shift of the heart with respiration.

A roentgenogram of the chest showed an alteration in the right thoracic cage (previous eight-rib thoracoplasty) with a homogeneous density between the right border of the vertebral column and the regenerated rib segments. The heart was of normal size and appeared in normal position. The left lung field was clear (fig. 2).

Synopsis of Past Medical History: A detailed case report has been published elsewhere.[3] Symptoms of cough, expectoration, occasional hemoptysis, chills and fever of four months' duration preceded hospital admission. The general and local signs were principally those of pulmonary suppuration incidental to bronchial obstruction. X-ray examination revealed a tangerine-sized mass in the right lung near the hilus. On bronchoscopy, the right main stem bronchus was found to be closed just below the upper lobe orifice presumably from extrinsic pressure. A specimen taken from this area failed to show tumor cells. Thoracic exploration was performed Nov. 2, 1933, and a firm mass was found in the substance of the right lung near the hilus. There was no evidence of mediastinal glandular involvement. The right lung was excised and the wound closed without drainage.

Fig. 2.—Appearance of chest five years and one month after right pneumonectomy. A two stage posterior thoracoplasty with the removal of long segments of the upper eight ribs was done for the purpose of obliterating the space in the right hemithorax.

Within the removed lung a moderately firm circumscribed tumor mass was found which measured 4 cm. in diameter. Tumor tissue filled the right lower main bronchus and compressed the surrounding lung tissue.

The microscopic examination of the tumor was made by Dr. Shields Warren, who reported that there was relatively little invasion of the surrounding tissue. The cells were arranged in anastomosing strands from two to eight cells wide with a fair amount of hyalin. The stroma was moderately vascularized. The tumor cells were principally columnar in shape, relatively small and ill defined. The cytoplasm showed basophilic staining and with the silver stain showed argentaffine granules. The nuclei were moderate in size, hyperchromatic and usually oval. Mitoses were rare. The microscopic diagnosis was carcinoma, unclassified.

The convalescence was uneventful except for the formation of a thoracic sinus, which discharged material from which Staphylococcus albus could be cultured. The patient was readmitted to the hospital in January and February 1934, at which times a two stage eight-rib posterior thoracoplasty was performed for the purpose of obliterating the space in the right hemithorax.

COMMENT

Not only has the patient remained free from metastatic disease, but all other patients surviving pneumonectomy for carcinoma of the lung in this series,[4] with two exceptions, are still living and present no sign of recurrence. Only one patient surviving operation has subsequently died of metastasis, this occurring six months later. The other late death occurred from other causes a year after operation, and at postmortem no trace of recurrent disease was found. In addition to the case reported, in which the five year mark has been passed, another patient in the series has lived four years and seven months, and two others will soon pass the three year mark. Furthermore, the loss of one lung has not placed limitations for the ordinary activities of life or the pursuit of happiness on any of the patients. This experience seems decidedly encouraging when it is realized that this form of cancer was practically a 100 per cent fatal disease before the accomplishment of surgical excision. Certainly, the fact that there are patients living today three, four and five years after treatment for primary lung cancer justifies the statement that the benefit of surgical aid be considered for all such patients if metastatic disease is not demonstrable at the time of clinical discovery of the primary lesion.

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A CASE OF PURPURA HAEMORRHAGICA RESULTING FROM SEDORMID

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My purpose in writing this paper is simply to add another case to the growing list of cases of purpura haemorrhagica resulting from the ingestion of the drug "sedormid" (allyl-isopropyl-acetyl-carbamide). The interesting feature of the case described in this article is the fact that the patient was a physician and was able to observe the symptoms perhaps more analytically than a layman could. While confined to the hospital, he was shown an article by Loewy,[1] the first to appear in the literature discussing the ill effects following the use of sedormid. Since then forty-five cases have been reported.

REPORT OF CASE

A man aged 36, married, a physician, left on a trip west May 17, 1937. Desiring to assure himself of a good night's rest in the sleeper, he took one sedormid tablet (he had picked up a sample box in his office before he left) at about 10 p. m. At midnight he woke up with a severe chill, which lasted for more than an hour. At the conclusion of the chill his temperature was 102.5 F. and pulse 96. At about 8 a. m. the following day his temperature became normal and he decided to proceed on his way. After dinner he became nauseated and began to vomit. With it, vertigo developed. The vomiting was almost continuous and he decided to abandon his trip. At midnight he made the connection for the return trip. The following day the nausea continued but the vomiting subsided. He arrived home after midnight May 20 and vomited soon after arrival. When he was resting in bed the nausea and vomiting subsided. On examining himself he found a few purpuric spots over the ankles, knees and wrists. The purpura disappeared in a few days and he returned to work. August 7 of the same year was a very warm day and the patient, unable to fall asleep, took a sedormid tablet at 10 p. m. At midnight he was awakened by a severe chill, similar to the one he had had in May, lasting one hour. At this time an association was made with the previous chill and only then did it occur to him that both chills came on two hours after the ingestion of a sedormid tablet. Remembering then that purpuric spots appeared the previous time, he scrutinized his skin in the morning and found a few purpuric spots scattered over the entire body except for the face. Simultaneously on the pillow he observed spots of bloody saliva and on examination discovered that there was also bleeding from the gums. He pursued his usual duties, feeling fair except for a slight anorexia. The slow bleeding continued unabated and at midnight, at the request of his physician, he entered the hospital. The following day his entire body was covered with numerous purpuric spots of various sizes. Bleeding of the gums continued. The capillary fragility test was positive. The blood count showed secondary anemia. The bleeding time was ten minutes plus, the coagulation time two minutes. The spleen was not palpable. The platelet count was 40,000. Ascorbic acid and calcium were given. August 9 the

1. Loewy, F. E.: Thrombopenic Hemorrhagic Purpura Due to Idiosyncrasy Toward Hypnotic Sedormid: Its Allergotoxic Effect, Lancet 1: 845-846 (April 21) 1934.

urine became wine colored. August 10, the platelet count dropped to 20,000. The same day he received a transfusion of 500 cc. of blood. It was noticed that during the transfusion clotting was taking place rapidly, as he felt his teeth, which were covered with blood, sticking together. Bleeding from the gums stopped almost immediately before the transfusion was complete. No more purpuric spots appeared. The following day the platelet count rose to 100,000; the bleeding time was seven minutes. August 12, the platelet count was 110,000, and the bleeding time three minutes and forty-five seconds. The white blood cell count rose from 3,850 to 6,800. August 14 the platelet count was 150,000, the bleeding and coagulation times were normal and the patient left the hospital, returning to his duties August 23. By August 23, all the purpuric spots had disappeared. August 29 the platelet count was 170,000 and otherwise the blood picture was normal. November 6 the platelet count was 260,000. There had apparently been no bleeding from the gastrointestinal tract and there was no nausea or vomiting. The temperature, pulse and respiratory rates were normal during his stay in the hospital. The blood counts and platelet counts taken since then have been normal, the last one, taken March 23, 1939, showing white blood cells 6,950, platelet count 250,000, bleeding time one minute and forty-five seconds, differential normal.

COMMENT

It is noteworthy to state that the physician to the best of his knowledge had never been allergic to any foods or any drugs, although barbiturates had been taken in the past for occasional headaches or nervousness. As in the case cited by McGovern and Wright,[2] the patient suffered two distinct attacks following the ingestion of sedormid. Soon after the transfusion, hemorrhages in the various systems of the body subsided and apparent regeneration took place. The urinalysis was entirely negative two days after he left the hospital. It was fortunate that no hemorrhages occurred in the brain, where serious lesions might have occurred. While the amount taken in this case was comparatively small, the symptoms which supervened were unusually severe. The dosage may not be the important factor in this condition; the deleterious and permanent effects which might result from its uncontrolled use may be surmised.

CONCLUSION

Further study of the drug sedormid and other potent sedatives which have crept into the armamentarium of the medical profession in such profusion during the last two decades should be made. Some of these drugs have unquestionably been a great boon to suffering humanity while others have been dangerous substitutes for the basic sedatives of the past.

231 West Wisconsin Avenue.

2. McGovern, Teresa, and Wright, Irving: Purpura Haemorrhagica Following Use of Sedormid, J. A. M. A. 112:1687 (April 29) 1939.

EXPERIENCE WITH A RAPID CLINICAL TEST FOR DIPHTHERIA (MANZULLA)

WAYNE W. FOX, M.D.; PAUL S. RHOADS, M.D., AND HERBERT LACK, M.D., EVANSTON, ILL.

In the Nov. 19, 1938, issue of the *Lancet* there appeared a summary of a report by Dr. Alfred Manzulla[1] of Buenos Aires concerning his experience with a rapid clinical test for diphtheria. The test was performed as follows: A cotton swab saturated with a 2 per cent aqueous solution of potassium tellurite[2] was applied to the suggestive exudate in the throat; after about ten minutes the area thus treated was inspected. Only those exudates due to infection with Corynebacterium diphtheriae turned black at the site of application of potassium tellurite. Manzulla found that in forty patients with throat exudate cultures of which showed C. diphtheriae the rapid tellurite test was positive in thirty-seven. Of thirty-five patients cultures of whose throat exudate showed no C. diphtheriae, none gave a positive tellurite test.

During the months of January and February 1939 this test has been applied to the exudate of twenty-seven patients with throat infections, seventeen of which yielded C. diphtheriae by culture on standard Loeffler's medium. In all these the potassium tellurite test was positive. There was one false positive tellurite test, in a patient having a unilateral, grayish, adherent

Results of Tests for Diphtheria

Location and Character of Exudate	Clinical Diagnosis	Tellurite Test	Cultures
Both tonsils and uvula; pseudomembranous	Diphtheria sore throat	Positive	C. diphtheriae
Left tonsil and uvula; pseudomembranous	Diphtheria sore throat	Positive	C. diphtheriae
Right tonsil; pseudomembranous	? Diphtheria sore throat	Positive	C. diphtheriae
Both tonsils; follicular patchy gray; pseudomembranous	Diphtheria sore throat	Positive	C. diphtheriae
Both tonsils; gray; pseudomembranous	Diphtheria sore throat	Positive	C. diphtheriae
Both tonsils; gray; pseudomembranous	Diphtheria sore throat	Positive	C. diphtheriae
Both tonsils; patchy gray; pseudomembranous	Diphtheria sore throat	Positive	C. diphtheriae
Both tonsils and uvula; diffuse gray; pseudomembranous	Diphtheria sore throat	Positive	C. diphtheriae
Right tonsil; gray; pseudomembranous	Diphtheria sore throat	Positive	C. diphtheriae
Both tonsils; gray; pseudomembranous	Diphtheria sore throat	Positive	C. diphtheriae
Both tonsils, uvula, nasopharynx; pseudomembranous	Diphtheria sore throat	Positive	C. diphtheriae
Both tonsils, uvula; gray; pseudomembranous	Diphtheria sore throat	Positive	C. diphtheriae
Right tonsil, uvula; gray; pseudomembranous	Diphtheria sore throat	Positive	C. diphtheriae
Right tonsil, uvula; pseudomembranous	Diphtheria sore throat	Positive	C. diphtheriae
Left tonsil; gray; pseudomembranous	? Diphtheria sore throat	Positive	C. diphtheriae
Entire pharynx and larynx, requiring intubation	Diphtheria sore throat	Positive	C. diphtheriae
Left tonsil; gray, adherent membrane	? Diphtheria sore throat	Positive	C. diphtheriae
Left tonsil; patchy gray; pseudomembranous	Streptococcus	Positive	No hemolytic streptococcus, no C. diphtheriae, no Vincent's angina
Right tonsil; small patch adherent, gray	? Diphtheria sore throat	Negative	No C. diphtheriae 6 times
Extensive membranous stomatitis	Vincent's angina	Negative	No C. diphtheriae, Vincent's angina ++
Pharyngitis, peritonsillar edema, soft gray pseudomembranous on uvula	? Diphtheria sore throat	Negative	No C. diphtheriae, hemolytic streptococcus +
One tonsil, adherent gray pseudomembrane	Diphtheria sore throat	Negative	No C. diphtheriae, hemolytic streptococcus +
Left tonsil, adherent gray pseudomembrane	Diphtheria sore throat	Negative	No C. diphtheriae, hemolytic streptococcus +
Both tonsils and uvula, soft yellowish white exudate	Streptococcus	Negative	No C. diphtheriae, hemolytic streptococcus +
Both tonsils and uvula; white membrane, later stomatitis	Vincent's angina	Negative	No C. diphtheriae, no hemolytic streptococcus, Vincent's angina +
One tonsil; small patch yellowish exudate	Streptococcus	Negative	No C. diphtheriae, hemolytic streptococcus +
Post-tonsillectomy membrane, 2 days (diphtheria carrier preoperative)	Diphtheria sore throat	Negative	No C. diphtheriae, no hemolytic streptococcus
No membranes or exudates (seven carriers)	No disease	Negative	C. diphtheriae in all

From the Department of Medicine, Northwestern University Medical School, and Cook County Contagious Disease Hospital.

1. Manzulla, Alfred: Folia biol., May-August 1938, p. 355; abstr. Lancet 2:1181 (Nov. 19) 1938.

2. One Gm. of potassium tellurite is dissolved in 50 cc. of distilled water at 40 C. The resulting solution is opalescent and on standing contains some grayish sediment. This should be suspended by shaking before use. A fresh solution must be prepared each month. With the minute amount used in the test there is no danger of toxic reactions.

tonsillar pseudomembrane, six cultures of which showed no C. diphtheriae. This patient denied the use of any gargles or lozenges. (Dr. Manzulla states that the use of peroxide gargles, tannic acid or methylene blue prior to the test may result in a false positive reaction.) There were nine patients whose cultures showed no C. diphtheriae, and all nine had negative tellurite tests. Of these nine patients, the etiology was hemolytic streptococcus in six and Vincent's Fusiformis dentium and spirilla in two. One patient, who had been a carrier for two months after an attack of pharyngeal diphtheria, gave a negative test two days after the performance of a tonsillectomy. Cultures taken this day and subsequently were negative for diphtheria.

Since we are unaware of any reports of the use of this test, either corroborating or disagreeing with the observations of Dr. Manzulla, we wish to present these results in the form of a preliminary report. A test which is so simple and rapid deserves careful study, particularly by physicians who see a large number of cases of acute throat infections. When the tellurite test is negative, it may be reasonably safe to withhold giving therapeutic antitoxin until the cultures are reported. With present rapid culture methods, this should involve no more delay than from twelve to eighteen hours.

636 Church Street.

Therapeutics

THE THERAPY OF THE COOK COUNTY HOSPITAL

EDITED BY BERNARD FANTUS, M.D.
CHICAGO

NOTE.—*In their elaboration, these articles are submitted to the members of the attending staff of the Cook County Hospital by the director of therapeutics, Dr. Bernard Fantus. The views expressed by various members are incorporated in the final draft for publication. The articles will be continued from time to time in these columns. When completed, the series will be published in book form.*—ED.

THE THERAPY OF CHRONIC ARTHRITIS

IN COLLABORATION WITH DR. EUGENE F. TRAUT

Chronic arthritis counts more victims than does tuberculosis. While not as fatal, it may be quite as disabling. Much better care for these unfortunates is demanded than has hitherto been their lot. The management of this disease requires superhygiene. "The arthritic must not only live well but better than well" (Pemberton).

There are three ways in which arthritis may be produced. One is from without (trauma or strain); another is from within (e. g., by infection). The third combines these two, the effect of strain on a joint damaged by disease resulting in a vicious circle. Other factors to the influence of which chronic arthritis owes its chronicity are endocrinopathies and subvitaminoses. Still more subtle is an inherited, constitutional inferiority of joint tissue. The therapy of chronic arthritis demands the breaking in on this vicious circle—the reason for its chronicity—at some point. One must treat the chronic arthritic patient as one with joint evidence of a systemic disease of probably multiple causation.

Chronic arthritis may be divided into two forms: specific and nonspecific. In the specific varieties it is assumed that the causal organism has been isolated or the metabolic or mechanical causative agent has been recognized. A knowledge of the cause is the most rational lead to success in therapy.

INFECTION IN ARTHRITIS

Although the infections have arbitrarily been divided into systemic and focal, it is probable that most infections affect the joint focally by production of substances harmful to the joint in some area outside the joint. Diseases presenting a bacteremia are liable to metastasize to the joint, directly invading it. Probably any infectious agent may also act as a focus producing harmful substances, loosely called "toxins," which affect the hypersensitive joint tissues.

Tuberculosis in the latter sense produces "tuberculous rheumatism" and in the former a destructive arthritis with cold abscess. Tuberculous arthritis usually attacks a single joint or one joint at a time. Destruction of bone, cartilage and ligaments results in deformity; spindle-shaped "white swelling" may develop, as well as a "cold abscess," which may discharge through sinuses. The pain is seldom extreme and tenderness is localized rather than diffuse. X-ray examination reveals a distinctive arthritic involvement of the joint. Atypical forms of tuberculous rheumatism, though probably not common, are frequently unrecognized. This condition occurs especially in youngsters having foci of tuberculosis. It may involve many small joints. There may be serous effusion into a large joint. It has a protracted course.

Rheumatic fever (q. v.) has its own well known clinical characteristics. It must be admitted, however, that cases of borderline rheumatic fever exist which are difficult to classify. One should suspect chronic arthritis when the affected joint continues to be painful and the inflammation does not shift from joint to joint. Temperature, when elevated, is not as high as it is in rheumatic fever, and the pulse is likely to be more rapid. Lymph glands are much more likely to be affected. Rapid muscular atrophy, e. g. of the interossei, is suggestive of chronic arthritis; so are definite x-ray appearances of joint change and lack of response to salicylate.

Gonorrheal arthritis is frequently mono-articular. Pain is severe and especially marked at night. Swelling is very marked, there being usually quite a bit of synovitis. The finding of the gonorrheal focus and a positive complement fixation test make the diagnosis. In some instances gonococci can be isolated from the synovial fluid. Its prompt response to artificial fever and to sulfanilamide is suggestive.

Brucellosis should be borne in mind. Serologic and cutaneous tests may be necessary.

Focal Infection.—Whether one looks on more or less accessible tissues harboring pathogenic bacteria, now commonly regarded as focal or localized infections, as contributing substances directly injurious to joints or whether one regards them as dertimental to the patient's general health, and consequently as handicaps to his recovery from joint disease, one must agree that their elimination would be desirable. The profession is far more generally, if less enthusiastically, agreed on this principle. Although theoretically any part of the body may act as a focus, the foci of the alimentary tract (the teeth and rectum and less frequently the colon and gallbladder), of the respiratory system (the tonsils, nasal

sinuses and bronchi), and of the urogenital tract (the prostate, cervix and tubes) are regarded as the more common. There are no indisputable criteria linking up tissue in one part of the body infected with such "nonspecific bacteria as streptococci, staphylococci or colon bacilli with disease elsewhere in the same individual. In particular, there exists no certain means of recognizing any two cultures of these bacteria as identical or as originating the one from another or the two from a common source. At present the treatment of one tissue as a focus of infection with the aim of aiding another part of the individual is justified only by the experience and judgment of the physician and the results of certain suggestive experiments.

Finding enlarged lymph glands may direct attention to the organ in the drainage area of the enlarged glands. 1. Diseased teeth are the most important foci in adults. The teeth must be examined roentgenologically and tested individually for vitality. Pulpless teeth should be extracted and pyorrheal pockets looked for. Absence of pain is of no significance. 2. The tonsils and adenoids are the most common foci of infection in children. But any patient with chronic arthritis with the characteristics of the infectious form deserves a tonsillectomy regardless of the appearance of the tonsils, provided other foci have been eliminated. 3. The nose, the ears and their adnexa the sinuses should be studied. This may demand a roentgenogram of the sinuses. Acute sinusitis is much less likely to act as a focus than the chronic form. 4. Infection of the bronchial mucosa, most especially bronchiectases, should be sought by roentgenograms, bronchoscopy and pneumography if cough is present. 5. The gastrointestinal tract must be explored for evidence of infection. Test meals may reveal hypochlorhydria or achlorhydria. Roentgenography may show cholecystitis (q. v.), colon stasis (q. v.) or colitis. The proctoscope may disclose colonic ulcers from which a culture may be obtained or from pus secured by duodenal tube; gallbladder drainage may show a preponderance of streptococci. 6. Urinary tract infection such as chronic pyelitis (q. v.) or cystitis (q. v.) should be looked for. 7. Pelvic infection should be suspected. The pelvic organs should be carefully palpated and the secretions expressed from the prostate, seminal vesicles and cervix, or the urethra should be examined for pus and bacteria.

REMOVAL OF FOCI OF INFECTION

Today the profession is much less enthusiastic, dogmatic and drastic in its attack on foci of infection. Certain it is that the time for their removal and the vigor with which they are attacked require considerable nicety of judgment. The patient must first be rested and built up. As previously stated, all apical abscesses or pulpless teeth require extraction. Pyorrhea (q. v.) pockets must receive thorough treatment. No halfway measures are admissible. If there is any doubt as to the condition of the tonsils, it is better to advise tonsillectomy. Nothing less than complete removal does any good, and this should include extirpation of adenoids if these are present. An infection of the nose, ears or sinuses, if present, demands a specialist's care and radical therapy if no other foci can be found. Digestive abnormalities must be corrected not only for the sake of removal of possible foci of infection but also to improve general nutrition, on which, after all, ultimate recovery depends. Any abnormality of the genitourinary tract requires equally radical and determined treatment.

Even when the operative procedure is undertaken after the patient's resistance has been improved, so far as can be, a temporary exacerbation of the arthritic process may result. It is well to warn the patient of this possibility. One may also say that this exacerbation, should it occur, might be taken as a welcome token that the cause of the disease is being attacked.

IMPROVING RESISTANCE

We know that all infection has a natural tendency to recovery. Were there a single infection from which recovery is impossible, humanity would have long since been exterminated by that infection. Hence in all cases of chronic arthritis the physician must discover the reason for the persistence of the infection. This is always due to poor resistance, which may be local or systemic; the latter may be hereditary or acquired. It is generally poor local resistance that determines the presence of foci of infection, and this is the reason such foci demand extermination.

The patient's systemic resistance requires building up. The patient's food habits demand investigation, particularly as to his vitamin intake, for subvitaminosis lessens resistance and infectious states per se demand an increased vitamin intake for expeditious recovery. The diet should, in general, be low in carbohydrates, especially as to the concentrated, refined carbohydrates such as white flour, corn starch, rice and sugar. The caloric requirements can be met with fats if the patient is emaciated. Constipation and obesity demand diets with a high cellulose content to provide bulk as a peristalsis stimulant and to replace the hunger satisfying effect of foods of higher caloric value. Patients with a history of "irritable bowel," "colitis" or tendencies to colonic distress and loose stools require expert regulation of the cellulose intake. The amount of roughage must be adjusted to their tolerance. In patients with carbohydrate indigestion one must rely on fats to furnish diets of sufficiently high caloric value. Protein is advised in twenty-four hour amounts of not less than 1 Gm. per kilogram of body weight in any case. This amount is increased without hesitation in anemic patients as well as in patients with the occasionally complicating nephrosis, in patients with low metabolic rates and in the obese. Anemic patients and also obese patients should be given lean meat in 100 Gm. quantities as often as twice a day, and eggs with their breakfast. The vitamin and mineral content of the diet must be as high as possible, even to the inclusion of cod liver oil, brewers' yeast and calcium compounds. Iron therapy is prescribed liberally to correct the secondary anemia (q. v.). Diluted hydrochloric acid in amounts up to 6 cc. is given with each meal to patients with achlorhydria or hypochlorhydria. Arthritic patients with hypothyroidism are given whole thyroid up to tolerance. This is likely to be particularly indicated in women at the menopause.

Heliotherapy is just as beneficial in increasing the resistance in the arthritic as it is in the tuberculous. Living and sleeping outdoors is therefore ideal, provided the patient is not chilled and that he is carefully protected against sudden changes of temperature. Warm socks and gloves are of comfort. Change of climate

113
1939

from the North to the South in winter is advisable whenever this is possible. Ultraviolet rays increase resistance if used generally and may relieve pain when applied locally.

Parenteral alterative therapy makes use of relatively heroic appeals to the patient's powers of resistance that are a tax on the system's resources. Hence this form of therapy should be resorted to only when the patient's nutrition has been improved as much as possible. It must never be attempted during an acute exacerbation, in the ill nourished or in the organically handicapped. The intravenous injection of salicylate, of iodide or of colloidal sulfur may be considered examples of this treatment. Autohemotherapy, one of its mildest forms, has been found helpful in gonorrheal arthritis. It consists of injecting 2 cc. of the patient's blood (which is secured by venipuncture) into the buttock, and increasing the dose by 2 cc. every third day until such reaction as increase of pains or fever occurs. At the other extreme of potency stands the intravenous injection of typhoid vaccine—starting with 50 million bacilli and increasing every fifth day to 150 million or more as required to secure a pronounced febrile reaction. Stock or autogenous vaccines may or may not be of value. In subacute gonorrheal arthritis the filtrate of autolyzed gonococci (Herrold) injected in sufficient dosage to cause chill and fever has been useful. Pyrexial therapy is specific for gonorrheal arthritis, possibly because of the thermolability of the gonococcus. It may be of some value in other forms of chronic arthritis.

NONINFECTIOUS SPECIFIC ARTHRITIS

Gout (q. v.) is relatively rare in its classic form. In early cases marked joint changes are absent. The finding of tophi is characteristic. The finding of an increase of blood uric acid without simultaneous excess in blood urea is suggestive. Characteristic are sudden recurrent attacks after excesses in food, alcohol or exertion, as well as sudden relief of the excruciating pain at the end of the attack. Gout gives a specific response to correct therapy. Gout is the only type of arthritis relieved by colchicum.

Allergy, and especially food allergy, may account for some cases of chronic arthritis. Certain it is that in some a sharp fast will usher in a period of convalescence better than any other therapy. There are some patients who believe that some kinds of foods are liable to provoke recurrence of attacks. In the treatment of all arthritic patients of the dietetic type the broad principle must not be forgotten that "optimal" nutrition is the sine qua non for maintaining resistance and that, if any elimination of important dietary ingredients seems indicated, this should be balanced by other food of similar composition that is found to agree with the patient.

It is indeed possible that allergy plays a greater role in chronic arthritis than is commonly realized. All the aseptic inflammations so characteristic of chronic arthritis may possibly be "allergic" in nature because of specific hypersensitiveness. It may be the joint response of systemic sensitization to tuberculin or to the metabolic products of other bacteria. That allergy may cause arthritis is shown by the joint swellings and inflammations occurring in serum disease. There is no doubt that some cases, at least, of intermittent hydrarthrosis are due to hypersensitivity.

Charcot's joint may also be included under this heading. The presence of Charcot's joint should be detected by general examination of the nervous system for tabes dorsalis or syringomyelia, and its recognition should protect the patient against having his lightning pains treated as "muscular rheumatism." Charcot's joint is at present regarded as a form of traumatic arthritis due to misuse of joints because of loss of deep sensibility.

NONSPECIFIC THERAPY

When a specifically manageable cause cannot be discovered and indeed also when it can be but requires time for its cure or is incurable, nonspecific therapy comes to the fore.

An abundance of rest in bed should be prescribed and its degree specified. This may vary from absolute rest in bed during acute phases of the disease to relative rest, e. g. an hour in bed in the middle of the morning with a nap directly after lunch or in the middle of the afternoon. All patients are advised to spend at least ten hours in bed at night.

Physical therapy is much more important in chronic arthritis than is medicinal therapy. In the acute stages rest and heat are indicated, while such evil effects of rest as weakening of the muscles and stiffening of the joints must be antagonized by appropriate massage and active exercises.

Local rest is demanded by any acute exacerbation of chronic arthritis and by local disease, whether this is due to trauma (sprain or strain) or from occupation (e. g. "air-hammer elbow"), relaxation of the ligaments (sacro-iliac), flat foot, bursitis (q. v.) or neuritis (q. v.). When the patient has sufficiently recovered to return to work, trauma and strain incident to his occupation must be discovered and removed, especially for joints handicapped by previous disease.

Production of hyperemia is of value for antibacterial, analgesic, reparative and resorptive effects. Thus heat is employed to relieve pain and stiffness, to induce relaxation before massage and to encourage certain poorly understood, favorable metabolic processes in the affected part. Acutely inflamed joints should be exposed for an hour or two daily to a cradle containing four electric light bulbs, screened so that the patient cannot burn himself, or be wrapped in hot voluminous dressings of half-saturated solution of magnesium sulfate. A convenient method of the application of heat is the hot paraffin film. This is applied by melting (low melting point 150 F.) paraffin and, when it is just at the congealing point, coating the affected part by dipping it in and then withdrawing it or by painting the melted paraffin on the surface until several layers have been applied. The film is left on for three quarters of an hour or until it comes off easily. In the subacute and chronic types these forms of the application of heat should be dictated by the demand for the relief of pain; counterirritation should be employed to improve the local circulatory activity, as by painting the affected joint with tincture of iodine, applying small cantharides plasters to persistently tender points or "baking" the limb for from twenty to thirty minutes once a day in severe cases ranging down to two or three times a week in others. Short wave or classic diathermy several times a week is of similar value. The local use of ultraviolet rays may also be mentioned here.

Retentive appliances are important. The prevention of deformity is much easier than its cure. It demands persistent efforts to antagonize contractures. The affected joints should be put up in light, well padded splints for several hours a day and especially over night. Prolonged immobilization by encircling plaster of paris casts is contraindicated. One may, however, use pelvic and/or leg traction and night splints (posterior molds, either metal or plaster), from which the limbs can be removed for other physical therapy. Removable splints are likewise useful for the maintenance of the foot at right angles, with neither inversion nor eversion, and for the wrists cock-up splints extending to the proximal palmar crease. For cases in which the back is involved a relatively firm bed is needed for recumbence or a posterior plaster shell supporting the drooping ribs when necessary and a proper corset or brace for ambulation, if prolonged bed rest of aged patients can be avoided thereby. In all arthritic cases the lifting of weights and all straining must be carefully forbidden for a long time.

Mobilization therapy should be instituted in atrophic arthritis as early as possible. It is especially indicated in cases presenting periarticular involvement. In the hypertrophic form all kinds of early manipulation are contraindicated. This is also true of Heberden's nodes, which must not be rubbed and should be protected against occupational trauma.

Massage should always be preceded by hyperemia (e. g. heat) and followed by rest. When a joint is acutely painful either it should not be massaged at all or the lightest stroking only should be applied to the parts above and below the joint (introductory massage). As soon as the pain is no longer severe, gentle friction (circular movement) and kneading should be applied. The muscles above and below the joint may now be given more vigorous treatment. As tenderness disappears the joint itself may be treated more energetically; but this must never be to the extent of inflicting pain. The patient may be taught to massage himself, or members of the family may be trained to massage the part. Light active movements are allowable as soon as they are not accompanied or followed by pain. This statement may seem to be irreconcilable with the primary indication for rest of all acutely inflamed joints. It should be understood, however, that it is friction of joint surfaces, the overcoming of resistance and the bearing of weight that is destructive to diseased cartilage and productive of hypertrophic changes. By exerting traction and separating as much as possible the surfaces of the affected joint, a certain amount of slight movement may often be effected without producing pain or harm. The aim of the exercises is to prevent adhesions and contractures, which often develop with great rapidity.

Exercise is encouraged up to the patient's tolerance. Marked fatigue or pain lasting into the next day is a sign that his disease-instituted limits have been exceeded. The patient is taught exercises especially adapted to the joints involved. Movements are often possible in warm water that are impossible out of it. The majority of patients are improved by the performance of such postural exercises as those of Goldthwaite and Osgood. These exercises should be taught and frequently rehearsed. Typewritten instructions and record sheets should be employed to individualize better the patient's therapy. Purposeful movements, exercise in making something (occupational therapy), are especially helpful in securing movement of particular groups of joints. They should be devised and taught by occupation therapists after advising with the attending physician. This occupational therapy should also be developed in the direction of possibly teaching the patient a new means of earning his living, for, as in the case of tuberculosis, a return to the patient's previous mode of living often means the return of his disease.

Surgery may be required after careful study of the x-ray film to determine the degree of damage present in the articular surfaces. Only when the joint disease is quiescent may tenotomy, capsulotomy, synovectomy or arthroplasty be indicated. Bony exostoses limiting joint movement may have to be removed and contracted tendons divided to straighten a crooked joint. In villous arthritis the removal of the hypertrophied fringes may result in great relief and improvement of function. After operation, joints must not be left in plaster casts for long unless ankylosis is sought.

As to medicinal treatment, besides the previously discussed restoratives (iron, hormones, vitamins) as required by the patient's deficiencies, analgesics may be demanded. Among these acetylsalicylic acid in doses of 0.3 Gm. (tablets) every two to four hours or even oftener may well be first choice. If too severe diaphoresis is produced before relief is secured, the addition of extract of hyoscyamus (0.02 Gm. per dose) may be of value. If pain is not sufficiently relieved or if it interferes with sleep, the addition of phenobarbital (0.05 Gm.) is advisable. Codeine phosphate (0.05 Gm.) should be added only if relief cannot be obtained without it. A course of arsenic therapy may possibly render service.

SUMMARY

To be successful in chronic arthritis the proper treatment must be started early and continued over a long time. Too commonly the diagnosis of "rheumatism" is made and everything that is prescribed in consequence (keeping the patient indoors, the prolonged use of heat, a protein diet, large doses of salicylate) does more harm than good. The treatment should be more nearly like the general regimen of tuberculosis. The patient's whole mode of living needs to be changed.

CONCLUSIONS

From these considerations the following conclusions are obvious:

1. Cook County Hospital, because of the great demand made on it for beds in which to take care of acute disease, should accept patients with chronic arthritis only for a general assay of the patient's condition to determine the best means of attacking the disease, to follow this with education of the patient and of his family and to perform any required surgical procedure.

2. A separate section of Cook County Hospital, a properly equipped "convalescents' hospital" or else a special institution for arthritic patients should provide for the care and study of the majority of these patients.

Such an institution would do a great deal to advance our knowledge of the rheumatic diseases and their cure.

3. After the patient has improved sufficiently to be permitted to go home, he should be kept under the supervision of an "arthritis clinic," which by prompt and appropriate treatment may succeed in keeping the patient from again becoming an inmate of the institution.

Council on Pharmacy and Chemistry

REPORT OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT. PAUL NICHOLAS LEECH, Secretary.

KETOCHOL NOT ACCEPTABLE FOR N. N. R.

Ketochol, which is stated to be "a combination of the oxidized, or keto, form of the bile acid (cholic, desoxycholic, chenodesoxycholic and lithocholic) normally present in human bile," is advertised extensively to physicians by G. D. Searle & Co. According to an advertising circular it is proposed for use in the "treatment of chronic cholecystitis, cholangeitis, hepatic dysfunction, congestion and cirrhosis." No chemical examination of the product has been made but it is believed that the mixture is composed largely of dehydrocholic acid.

COMMENTS ON THE PAMPHLET ENTITLED "STEPS UPWARD"

The statement "Ketochol offers a combination of the oxidized, or keto forms, of the bile acids (cholic, desoxycholic, chenodesoxycholic and lithocholic) in approximately the same proportions as in normal human bile" is misleading. It has not been shown that these keto acids occur in human bile in any amount and very little information of quantitative character is available about the proportions of the unoxidized compounds. Further, the bile acids are not present naturally in bile as either free acids or sodium salts but as conjugation products with either glycine or taurine.

The statement "Ketochol is effective in the treatment of chronic cholecystitis, cholangeitis, hepatic dysfunction, congestion and cirrhosis" is, of course, unwarranted. The statement in the same paragraph "By improving liver function it assists in combating intoxication and in detoxifying the blood stream" is likewise unwarranted, since there is no evidence that such keto bile acids do improve liver function. As a matter of fact there is reason to believe that they act on the liver as a toxic substance which is rapidly eliminated in the bile as such. They do not cause an increased secretion of solids but rather the production of a copious watery bile in which keto acid is eliminated unconjugated.

COMMENTS ON THE PAMPHLET ENTITLED "A PHYSIOLOGIC CHOLECYSTOTOMY"

The statement that "Ketochol is a combination of oxidized, or keto form of the bile acids . . . normally present in human bile" is objectionable on the grounds already stated. Also the statement under "Indications" that the mixture "is effective in the treatment of HEPATIC DYSFUNCTION" is altogether too broad and meaningless. It might be wise also to include the contraindications to this medication.

COMMENTS ON THE PAMPHLET ENTITLED "THE NEW TREATMENT OF GALL BLADDER CONDITIONS"

Objection is made to the statement on the last page: "Ketochol, developed in the Searle Research Laboratories, offers a combination of the oxidized, or keto form, of the bile acids (cholic, desoxycholic, chenodesoxycholic and lithocholic) normally present in the human bile" and to the recommendation in the next paragraph that "Ketochol stimulates liver function." Also objectionable is the statement that Ketochol is most effective in the treatment of "hepatic dysfunction and congestion."

In view of the foregoing report, the Council declared Ketochol not acceptable for inclusion in New and Nonofficial Remedies, and authorized publication of this statement.

Council on Foods

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT. FRANKLIN C. BING, Secretary.

ANNUAL MEETING OF THE COUNCIL ON FOODS

The annual meeting of the Council on Foods, held at the Association headquarters on March 18, was attended by the following members:

Dr. Franklin C. Bing	Dr. James S. McLester
Dr. George R. Cowgill	Dr. Irvine McQuarrie
Dr. Morris Fishbein	Dr. Lydia J. Roberts
Dr. Philip C. Jeans	Dr. Mary Swartz Rose
Mr. Culver S. Ladd	Dr. Tom D. Spies
Dr. Howard B. Lewis	Dr. Russell M. Wilder

For all or part of the meeting there were also present the following members of the Council on Pharmacy and Chemistry:

Dr. P. N. Leech	Dr. E. L. Severinghaus
Dr. E. M. Nelson	

Also in attendance were Mr. Howard A. Carter, secretary of the Council on Physical Therapy, and Dr. Harold L. Hansen, secretary of the Council on Dental Therapeutics of the American Dental Association.

Drs. Fishbein and Lewis were reelected Chairman and Vice Chairman of the Council, respectively. Physicians, manufacturers and others may be interested in the following topics which were among those given consideration at the meeting:

Scope and Significance of the Seal of Acceptance.—It has not been possible for the Council to exercise supervision over foods of every kind; hence certain natural foods of well known nutritive value, such as milk, butter, eggs, fresh fruits and vegetables, are not accepted, although claims made in general advertising may be reviewed and given the seal of acceptance. Any misunderstanding of the Council's position is regrettable. Processed foods have been the chief concern because it is largely through advertising that the consumer is informed as to the composition and nutritive properties of such foods. The Council aims to render service by recognizing the products of firms which honestly desire to restrict their claims to those which the Council believes are well established.

The appearance of the seal on fabricated foods does not indicate that such products are to be preferred over nutritionally desirable products in their natural state. All foods which stand accepted are considered by the Council to be wholesome but not necessarily to be preferred to simple natural foods.

Questions pertaining to the significance of the seal are perennial. A subcommittee, appointed to study the problem, presented a report and offered a number of suggestions. It was thought that the seal might well be modified to provide some explanation of the significance of the word "Accepted," about which much of the difficulty revolves. The committee suggested that the statement be modified to read "Accepted as Represented." It also was suggested that, when the seal is used in advertising, it might be well to require that it be accompanied by an appropriate statement such as "This seal signifies that the statements and claims made in this advertising conform to the standards of the Council on Foods of the American Medical Association." The committee's report called attention to the activities of various trade groups, notably some members of the ice cream industry, who have sought to establish high standards of nutritional and sanitary qualities of their products. The Council views most favorably progressive steps on the part of the food industry. It was suggested that the seal might well appear on the advertising of such trade organizations with a statement to the effect that "This seal signifies that the Council on Foods of the American Medical Association believes the standards of quality established by our organization are in the interest of public health. The maintenance of these standards is the responsibility of this firm." There was considerable discussion of each

of these proposals, but no action was taken pending a further report of the committee after the book "Accepted Foods" has been completed.

The Book "Accepted Foods."—There are twelve sections to the book and all but four have been completely written. Work is progressing on the remaining material and the book should be available within a few months.

Fortification of Foods with Vitamins and Minerals.—Further consideration was given to the recommendations of the Cooperative Committee on Vitamins, which have been published recently (THE JOURNAL, August 12, p. 589). After considerable discussion it was decided that mild fortification of cereal products with calcium or iron salts or both might well be recognized. The fortification of cereals with vitamin D was again given consideration and it was decided that such manipulation of cereals could not be recognized because it did not seem to be in the interest of public health, at least on the basis of present information. A further report on the desirability of adding vitamin B_1 to cereal products is being prepared for publication. As a result of its study of available evidence, the Council adopted the following statements as an expression of present policy:

The Council on Foods desires to encourage the restorative addition of vitamins or minerals or other dietary essentials, in such amounts as will raise the content of vitamin or mineral or other dietary essential of general purpose foods to recognized high natural levels; with the provision that such additions are to be limited to vitamins or minerals or other dietary essentials, for which a wider distribution is considered by the Council to be in the interest of the public health.

The Council is opposed to the indiscriminate fortification of general purpose foods with vitamins or minerals or other dietary essentials. By fortification is meant the addition to a food of such an amount of a vitamin or other dietary essential as to make the total content larger than that contained in any natural (unprocessed) food of its class.

The following fortifications are recognized by the Council as being in the interest of the public health: (1) the addition of vitamin D to milk to an extent not to exceed 400 units per quart, no objection being made when the added vitamin is obtained from a natural source, if it carries with it one or more other vitamins; (2) the addition of vitamin A to substitutes for butter to an extent not to exceed the amount of vitamin A in butter of high natural content of vitamin A, no objection being made when the added vitamin is obtained from a natural source, if it carries with it one or more other vitamins; (3) the addition of iodine to table salt in an amount not to exceed one part of sodium or potassium iodide for each 5,000 parts of salt; (4) the addition of calcium salts to wheat flour or other cereal product in an amount such that the calcium content of the finished product does not exceed 0.075 Gm. for each 100 calories, and (5) the addition of iron to wheat flour or other cereal product in an amount such that the iron content of the finished product does not exceed 0.0015 Gm. (1.5 mg.) for each 100 calories.

Lead in Foods.—It must be apparent to readers that the Council has been concerned with the problem of lead in foods for some time (THE JOURNAL, May 29, 1937, p. 1890; July 9, 1938, p. 154). A progress report was made of present investigations under a special grant for research provided by the Board of Trustees, and a full report of this work will be published later.

Consideration was given to a recent development of the apple industry, whereby culls are converted into a beverage. In some instances the apples are crushed without removal of the skins and cores and the macerated fruit is evaporated under diminished pressure, resulting in the preparation of a fragrant apple syrup having a high concentration of levulose. Such products, of course, ordinarily are diluted before use, but they are sold in the concentrated form. The concentrated juice presents a problem when the content of spray residues such as lead or arsenic or both exceeds the tolerances for these elements, even though after dilution the beverage may be considered satisfactory. The Council voted not to accept these apple products unless in the form in which they are marketed they contain less than two parts of lead (as Pb) and 1.06 parts of arsenic (as As) per million.

Fluorine in Foods.—Within recent years certain insecticides containing fluorine have been introduced in agriculture. The Food and Drug Administration of the U. S. Department of Agriculture has established a tolerance of the amount of fluorine that will be permitted on fruits when sprayed with insecticides containing this element. The present tolerance is 0.02 grain per pound, which is equivalent to 2.8 parts per million. In the opinion of the Council, it is proper that a tolerance for fluorine should be established for fruits on which insecticides containing compounds of this element have been used. Fluorine is known to be toxic in large amounts and, in smaller amounts, to exert a deleterious effect on teeth and bones.

The question was raised about the attitude of the Council toward the use of ground bone or bone meal in cereal preparations, particularly those intended for the feeding of infants. Dried powdered bone long has been used as a source of calcium and phosphorus in the preparation of feeds for farm animals, and a number of years ago rock phosphate was introduced as a substitute. The use of the latter led to disastrous results which were found, after extensive investigation, to be caused by the relatively high amount of calcium fluoride in most rock phosphates. Animals fed on foods containing high amounts of fluorides developed abnormalities of the bones and teeth. The human being also is susceptible to fluorosis. The teeth are affected in young children living in districts where endemic mottled enamel occurs. The only studies of tooth changes in children that have been reported have been in relation to water supplies. It has been shown that fluorine in water up to about 0.8 part per million has no noticeable effect on teeth, but mild mottling may occur above this level and, with concentrations of six or more parts per million, severe pitting and chipping of the enamel may result. Several investigators have agreed that the maximum nontoxic limit for fluorine in water is about 0.8 to one part per million, when mottled enamel is used as the criterion. If one estimates that the infant may consume about 300 to 400 cc. daily of water, the intake will be about 0.24 to 0.32 mg. of fluorine daily if the water contains 0.8 part per million. In the case of cereal preparations fortified with bone meal (to supply additional calcium and phosphorus), the maximum serving for a child would rarely be greater than about one ounce. On the basis of a fluorine content of ten parts per million (practically all of which is derived from the ground bone) one ounce of such a cereal mixture would contain about 0.28 mg. of fluorine or about the same as the intake of fluorine from water containing the maximum nontoxic level of fluorine.

In discussing the question, it was brought out that the relative availability of fluorine from different sources must be considered. The fluorine in water supplies is present as the fluoride ion, which is readily absorbed. The fluorine of bone is largely present as calcium fluoride, which is insoluble and poorly absorbed, as has been reported by several investigators working independently. The evidence indicates that fluorine as a natural component of food is nontoxic, even though the amount present might exceed that usually considered toxic under certain circumstances.

There is even some evidence that small amounts of fluorine may contribute to human well being, although this is by no means established. It is known, however, that carious teeth contain considerably smaller amounts of fluorine than are found in sound teeth. A recent report calls attention to a greater immunity to dental caries in children residing in communities where the fluorine content of the water is comparatively high. Further investigation of these interesting topics may prove most fruitful.

On the basis of available evidence, the Council sees no reason why bone meal should not continue to be accepted as a satisfactory ingredient of cereal mixtures intended for the feeding of infants, although it would be highly desirable to select bone that is relatively low in fluoride. There is a remote possibility that, in regions where the fluoride content of the water is somewhat near the point of toxicity, other sources of fluorine such as those provided by foods might assume unusual importance. As a guide to physicians and others interested in the problem, the Council voted to request additional information about the fluorine content of cereal products specially designed for infant feeding, with the view to including the information in the book of Accepted Foods.

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1939

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SATURDAY, AUGUST 19, 1939

ASSOCIATED HOSPITAL SERVICE OF NEW YORK REVISES ITS CONTRACTS

What happens when arrangements are made to provide medical and hospital services on an insurance basis without sufficient actuarial data is clearly told in a news release from the Associated Hospital Service of New York. The new agreement which the Associated Hospital Service is making with its subscribers is based on a study of the four years experience of the service; it embodies several new limitations and some liberalizations of the former contracts.

About 57,000 contracts with subscribers who enrolled through individual instead of organized group applications are to be terminated. This was announced recently as a result of this study, which indicated that under past enrolment procedures a proper distribution of risk was not provided.

Three types of contracts are to be issued: one for individuals, one for husband and wife, and one for a family group consisting of husband, wife and all unmarried children less than 18 years of age. This third contract will include maternity benefits. The husband and wife contract will be issued at a rate equal to double that paid for an individual member. This is said to be the only change in rates. Husband and wife who desire maternity service benefits may join the family plan; however, subscribers who enroll under the family contract other than through organized groups will not receive maternity benefits. Although the news release does not call attention to this limitation as a further means of providing a more equitable distribution of risk, this limitation does mean that the maternity benefits can be obtained only through enrolment in organized groups.

If the subscriber has been a member of the plan for six months, hospital service for the removal of tonsils or adenoids will be provided. One day of care will be offered to patients less than 12 years of age, and two days of care will be provided for those who are over 12 years of age. Thus, it will be observed that persons who require hospital service for the removal of tonsils or adenoids must be prepared to leave the hospital in one or two days. The matter of complications is apparently at the patient's own expense.

Under the new agreement, the plan will not cover the following illnesses and services: pulmonary tuberculosis after a diagnosis has been made; communicable diseases, such as scarlet fever which requires isolation; smallpox, diphtheria, venereal diseases, etc. No explanation is made of the "etc." Functional, nervous and mental diseases and congenital disorders are not included among the benefits. No provision is to be made for radium and x-ray treatments or physical therapy. Special medications, oxygen, vaccines and blood for transfusions are not to be provided, and patients are to be denied proprietary medicines. There will be no provision for outpatient and emergency treatment, ambulance service, admissions primarily for diagnosis, and conditions provided for under workmen's compensation, veteran's compensation or any similar conditions for which medical and hospital care is provided by existing laws. It is stated that the plan will not pay the subscriber's doctor bill or the cost of the services of private nurses.

Shortly after the organization of the Associated Hospital Service of New York, it was announced that the hospitals had agreed to accept subscribers to the plan at a minimum rate of $6 a day, but it was contended at that time that the prospects were good that this rate would be increased in the future to $7 or $8 a day. Although the amount paid to hospitals for general services is not given in the news release, it is stated that a credit of $5 a day for a period of ten days will be granted to maternity cases after the subscriber has been enrolled for eleven months.

It is admitted that nonprofit group insurance against the cost of hospital care is new and has no working principle. It is further stated that patients who take undue advantage of the benefits offered by the service are being unfair to other subscribers. In the future an attempt will be made to limit the stay in a hospital on the basis of the physician's recommendation and it seems to be the policy to require those patients who desire to remain in the hospital a longer time than is necessary to pay the additional cost.

Definite comment is not made on the increased demand for hospital service due to epidemics or other unpredictable medical conditions or to the natural increase in demand which comes from hospital mindedness, which is an ultimate and natural outcome of an insurance arrangement. However, it is stated that a limit has been placed on the credit of $25 which is provided for the use of the operating room, $25 credit for x-ray and $20 for laboratory examinations, to prevent excessive and unnecessary demands.

It is claimed that the revisions in the agreement with subscribers are normal and were to be expected. Furthermore, it is stated "and as our knowledge of

the incidence of sickness in the enrolled groups and the cost of its care is increased, changes in the contract have been made in the light of such experience in order to stabilize its provisions."

No comment is made as to the reaction which is likely to follow from the cancellation of contracts. The reader of the news release is left with the impression that with these revisions the service is now on a perfectly sound actuarial basis. This is the impression that was given at the beginning of the plan and that has been announced from time to time until comparatively recently. Perhaps another four years experience will indicate some additional changes in the contracts.

VITAMIN B_6

The development of knowledge concerning the vitamins includes striking examples of the application of the results of experimental investigation to clinical medicine. In many instances the routine clinical use of the vitamin has preceded definite information regarding its chemical constitution. The use of concentrates has been of great practical benefit. The point is admirably illustrated by our present knowledge of the vitamins of the B group or the so-called vitamin B complex. The early history of vitamin B demonstrated that this factor had profound effects on growth, gastrointestinal motility, appetite, carbohydrate metabolism, integration of nerve action and other physiologic processes and functions. These observations led to a search for individual substances as members of the B group of vitamins. The chemical nature of vitamin B_1 and of vitamin B_2, or G, has now been established and confirmed by synthesis, as has also the structure of the antipellagra substance nicotinic acid, also a member of the vitamin B complex. Although these vitamins were being used in the form of concentrates before their chemical identification, their clinical value has been enhanced and expanded by the availability of the synthetic products.

To the vitamins of the B group which are known in chemically pure and in synthetic form, namely thiamin (B_1), riboflavin (B_2 or G) and nicotinic acid, must now be added a fourth member, the factor termed vitamin B_6. At least six B vitamins have been proposed. Other "factors," with a variety of nomenclatures and functions, have also been proposed for inclusion in the B group of vitamins. There is some uniformity of opinion in the use of the term vitamin B_6, which has been applied to that factor of the vitamin B complex which prevents or cures an acrodynia-like dermatitis in young rats.[1] It has also been stated [2] that puppies on a vitamin B_6 deficient diet develop a severe microcytic hypochromic anemia, which is cured by the addition of this factor to the diet. The structure of vitamin B_6 has been recently established independently by laboratories [3] in Germany and in this country, and the American investigators [4] have also reported a complete synthesis of the vitamin as conclusive support for the proposed structure.

One of the most interesting of the developments in the chemistry of vitamin B_6 is the demonstration that the substance is a derivative of the nitrogenous base pyridine, being a methyl, hydroxy, dihydroxymethyl substituted pyridine. The base pyridine is also the fundamental ring structure in nicotinic acid, and the amide of the latter compound is a component of the enzymes comprising the dehydrogenase group. The importance of the pyridine nucleus already established in biologic oxidations and reductions appears to indicate that certain functions of vitamin B may be concerned with similar types of biologic reactions. Indeed, Birch [5] has recently suggested that the physiologic function of vitamin B_6 is connected with the utilization of the unsaturated fatty acids.

The availability of synthetic vitamin B_6 will no doubt greatly stimulate experimental efforts to elucidate new information regarding its physiologic functions. Furthermore, if the pharmacologic properties of the vitamin permit, possible therapeutic functions of this new compound should be explored. Indeed, a very recent account [6] describes the striking improvement in muscular and neurologic symptoms in four persons who were given 50 mg. of synthetic vitamin B_6.

1. György, Paul: Nature **133**: 498, 1934; Biochem. J. **29**: 741 (March) 1935. Birch, T. W.; György, Paul, and Harris, L. J., ibid. **29**: 2830 (Dec.) 1935. György, Paul: J. Am. Chem. Soc. **60**: 983, 1938.
2. Foots, P. J.; Helmer, O. M.; Lepovsky, S., and Jukes, T. H.: J. Nutrition **16**: 197 (Aug.) 1938.
3. Stiller, E. T.; Keresztesy, J. C., and Stevens, J. R.: J. Am. Chem. Soc. **61**: 1237 (May) 1939. Harris, S. A.; Stiller, E. T., and Folkers, K., ibid. **61**: 1242 (May) 1939. Kuhn, R.; Wendt, G., and Westphal, K.: Ber. d. Deutsch. chem. Gesellsch. **72**: 310, 1939.
4. Harris, S. A., and Folkers, K.: J. Am. Chem. Soc. **61**: 1245 (May) 1939.
5. Birch, T. W.: J. Biol. Chem. **124**: 775, 1938.
6. Spies, T. D.; Bean, W. B., and Ashe, W. F.: Use of Vitamin B_6 in Human Nutrition, J. A. M. A. **112**: 2414 (June 10) 1939.

Current Comment

FUNCTIONAL CAPACITY OF THE UNDESCENDED TESTIS

After reviewing the literature on the incidence, causes, microscopic appearance and treatment of the undescended testis, Rea [1] concludes that the undescended testis has an internal secretion. The evidence for its external secretion of viable spermatozoa, however, is scanty, and it is toward this question that his attention was given. For the experimental study of this problem only naturally cryptorchid animals, chiefly the dog and the pig, were used. Smears were made from cut sections from the testis, epididymis, vas deferens and seminal vesicles of abdominal testes in eleven full grown pigs. Microscopic sections also were made from these organs, and both smears and sections were searched for spermatozoa and the germinal epithelium was scrutinized. Although the gonads in each case showed the usual degenerative changes, smears made from cut sections of the testis revealed spermatozoa in six. As a result of other carefully devised

1. Rea, C. E.: Functional Capacity of the Undescended Testis, Arch. Surg. **38**: 1054 (June) 1939.

and executed studies of descended and undescended testes in man and animals, the author concluded that the undescended testis does not differ grossly or microscopically from the normal up to puberty but after this undergoes degenerative changes. How long the undescended human testis remains capable of function is unknown. There are undoubtedly cases in which spermatogenesis has persisted into adult life. It may be estimated that 10 per cent of untreated human cryptorchids remain fertile. Since it has been proved clinically that as high as 82 per cent of those treated by orchiopexy have active spermatozoa in the semen, this procedure may be considered generally desirable. Judging from the number of spermatozoa in the ejaculated semen, as well as in the microscopic appearance of the undescended testis after orchiopexy, such organs probably never attain an approximately normal functional capacity. It is not known whether the potential function of the ectopic testis is inherently smaller than that of the descended gland. The results of microscopic examination up to the time of puberty and the results of tissue culture fail to show any positive proof of congenital imperfection. Most imperfections become apparent at puberty, probably as a result of the influence of the hormonal and of extrinsic anatomic factors arising at that time.

STILLBIRTHS AND NEONATAL DEATHS IN FAMILIES

Some families seem to be excessively susceptible to stillbirths and deaths in early infancy. The statistical difficulties in the establishment of this impression as a fact are numerous because of such complicating factors as the external environment, the age of the mother, the prematurity of the infant and the widespread reduction in the number of pregnancies of individual women. Elizabeth Gardiner and Yerushalmy[1] have made an excellent attempt at the statistical study of this problem by analyzing all the births other than first births that occurred in 1936 in New York State exclusive of New York City. The statistical method used attempted to allow for the complicating factors mentioned. The investigators found that neonatal mortality as well as the stillbirth rates of infants born to mothers who had had previously one or more infant losses was more than twice that of infants born to mothers who had previously had no such losses. Furthermore the increasing mortality varied directly with the number of previous infant losses. Thus infants born to mothers who had had four or more previous losses were exposed to a risk of stillbirth and neonatal mortality more than four times as great as that of infants whose mothers had had no previous infant loss. This increased mortality associated with previous infant loss was found to be present in every order of birth and was extremely pronounced in the case of second births. The increased mortality was considerable for every age of mother, although the difference in rates was greater among infants of young than of old mothers. They also found that the frequency of premature birth to mothers who had had previously an infant loss was much higher than that of infants born to mothers who had not had such loss previously. The late fetal and neonatal mortality of full term infants behaved in a similar manner. Finally information obtained from the Buffalo City Hospital was presented to show that the incidence of premature birth is in itself of a repetitive character and that mothers who had had a premature birth or miscarriage were much more likely to have a similar occurrence in succeeding pregnancies. This interesting study seems to confirm the practical views already held by many obstetricians that mothers with previous histories of premature births, stillbirths and high neonatal mortality of their infants require exceptionally careful antepartum precautions.

1. Gardiner, Elizabeth M., and Yerushalmy, J.: Familial Susceptibility to Stillbirths and Neonatal Deaths. Am. J. Hyg. 30: 11 (July) 1939.

CROSS PURPOSES

An unidentified newspaper clipping, presumably from a Philadelphia newspaper, carries the interesting information that a Philadelphia hospital and an antivivisection organization each received $5,000 under the will of a woman who also bequeathed $1,000 to a dog and cat hospital. This is an ironical comment on what was undoubtedly a totally unintended result of these bequests, namely that one of them will be used to defeat the purposes of the other two. The bequest to the hospital and to the dog and cat hospital will be used for the treatment of human beings and animals suffering from disease. This treatment will be preceded by diagnosis based on knowledge obtained from animal experimentation. It will include methods of treatment, both medical and surgical, based on animal experimentation. Even the well chosen diets which will adorn the trays of the human patients and the rations which will restore ailing animals to their owners in prime condition are computed on the basis of information depending in large part on animal experimentation. The bequest to the antivivisection society will be used to cripple, harass and defeat the efforts of scientists to use animals in the investigation of the remaining problems and mysteries in the field of health and disease. Thus unconsciously this testator has made one bequest which will neutralize and set at naught the effects of another.

EXPERIMENTAL POLIOMYELITIS AND SULFAPYRIDINE

It having been previously shown that sulfanilamide is without effect in the prevention of experimental poliomyelitis,[1] Toomey and Takacs,[2] using sulfapyridine, injected intracerebrally each of eight Macacus rhesus monkeys with 0.5 cc. of 1 per cent purified virus suspension of Flexner's M. V. strain. Two days later four of the animals received 0.5 Gm. of purified sulfapyridine twice daily for from seven to ten days, when massive paralysis appeared. All eight animals developed poliomyelitis within seven to ten days after injection of the virus, irrespective of administration of sulfapyridine. The investigators conclude therefore that sulfapyridine, like sulfanilamide, is of no value in preventing the production of experimental poliomyelitis in Macacus rhesus monkeys injected intracerebrally with poliomyelitis virus.

1. Toomey, J. A., and Takacs, W. S.: Arch. Pediat. 55: 307 (May) 1938. Kolsen, Saul: Proc. Soc. Exper. Biol. & Med. 36: 718 (June) 1937.
2. Toomey, J. A., and Takacs, W. S.: Arch. Pediat. 56: 384 (June) 1939.

ORGANIZATION SECTION

THE NATIONAL HEALTH PROGRAM

DIGEST OF THE PRELIMINARY REPORT FROM THE COMMITTEE ON EDUCATION AND LABOR, SUBMITTED BY SENATOR MURRAY

In submitting its preliminary report (Senate Report No. 1139, 76th Congress, 1st Session) the subcommittee of the Committee on Education and Labor points out that it is in agreement with the general purpose and objectives of the Wagner bill, S-1620, establishing a National Health Program; it wishes, however, to give this legislation additional study and to consult further with representatives of lay organizations and of the professions concerned.

The subcommittee states that it intends to report out an amended bill at the next session of Congress.

I. NEED FOR A NATIONAL HEALTH PROGRAM

The preliminary report states that this bill is the result of several years of preparatory study and discussion and that it grew out of the movement which led to the Social Security Act of 1935, followed by the National Health Conference, the National Health Survey and various other activities.

The evidence presented shows convincingly, the committee believes, that there are great opportunities to improve health conditions in this country. It is felt that we should be able to make still further improvements on the excellent records in the field of health that prevail today. Special reference is made to the opportunity to save lives threatened by tuberculosis. It is said that the funds available for venereal diseases are sufficient to make only a beginning in this campaign.

The report emphasizes that 11,000 mothers died in childbirth in 1937 and alleges that more than one half to two thirds of such maternal deaths are preventable. It is said also that each year nearly a quarter of a million women do not have the advantage of a physician's care at the time of delivery. Vastly more could be done than is being done to conserve the lives and health of children.

The report indicates the belief that only those in the upper income groups receive anything approaching adequate dental care.

There is a discussion of the extra hazards associated with industry, and much is said of the need of new methods of medical service in rural areas.

Emphasis is placed on the statement that there is wide variation among the states in the availability of hospital facilities. With regard to general hospitals, the number of available beds varies among the states from a maximum of 5.2 to a minimum of 1.3 for every thousand of population. The record for the country as a whole indicates an average of 3.1 beds for every thousand persons and the report asserts that adequate standards for general hospitalization call for an average of 4.5 beds in general hospitals for every thousand persons.

There are also great differences among the states in the availability of beds in mental institutions.

COSTS OF ADEQUATE HEALTH SERVICES

The preliminary report calls attention to the fact that there are various factors which explain why large proportions of the population fail to receive the medical and health service they need. The committee recognizes the fact that ignorance, reliance on unsuitable methods, great distances from physicians, and so on, play a part, but it says that from the evidence placed before it the major reason is lack of financial ability on the part of large portions of the population to meet the costs of needed services. It has accepted the idea that many who could buy medical care on some budget basis find it difficult to purchase service on the customary basis of paying for the care when the need for the care arises.

Figures are cited from the National Health Survey to show that the average number of physician's calls per case is higher among the well-to-do than among the poor. The committee repeats the statement of a witness for the American Medical Association to the effect that among the one fourth of the states with the highest percentage of population filing income tax returns there was an average of one general hospital bed for 261 persons in the population and that these beds were being used 65.5 per cent of their capacity. In the one fourth of the states at the other end of the economic scale there are 549 persons per general hospital bed with an average occupancy rate of only 52 per cent.

Much emphasis is placed on the report supplied by Dr. R. G. Leland, Director of the Bureau of Medical Economics, who testified on behalf of the American Medical Association and who supplied factual data on medical economics.

The committee said "We cannot emphasize too strongly or say too often that when we speak of inadequate medical care, of insufficient services received by large numbers of people, or of the economic problems in paying for care, we are not criticizing the physicians or hospitals or others who furnish services. They have long been performing humanitarian services deserving the highest praise. It is not the responsibility of doctors or hospitals or related groups that large sectors of the population have limited economic resources."

The committee paid tribute also to the work of the voluntary organizations and stated that "every right-thinking citizen will insist that in the health program for the future there shall be adequate provision for the continued vigorous activity of the voluntary organizations."

DISABILITY INSURANCE

The committee believes that the program of social security which this country has established is incomplete without protection of the individual against the risk of losing his earning power because of disability. The committee feels that, if adequate protection against the risk of disability is to be developed, insurance must be made obligatory as has already been done in the case of protection against unemployment in old age.

THE NEED FOR FEDERAL ACTION

The committee argues that it does not propose a new departure or a new type of activity for the federal government. "It is our opinion," it says, "that the administration and operation of health services should

be left to the local communities and to the states, and that the federal government should not control or dictate to the local communities or states in the management of these functions. . . . The primary opportunity for the federal government is to give financial and technical aid to the states."

It is pointed out that the federal government is now providing aid to the states for a variety of purposes having to do with the general welfare and with health. The committee points out that the public hearings have shown that there is a broad and substantial support now for federal legislation to strengthen, extend and improve the health services of our people. Scarcely a witness raised objection to the objectives of the bill, although representatives of some organizations presented serious criticisms.

II. Principles Underlying the Bill

Here the committee presents an analysis of the bill together with statements by Abel Wolman, Dr. Felix J. Underwood, Dr. A. T. McCormack, Dr. Thomas Parran and Miss Katharine Lenroot in support of the form of S. 1620.

III. Principal Provisions of the Bill

There follows an analysis of the bill as it now stands and a table of comparison of present appropriations for health purposes under the Social Security Act and the appropriations proposed to be authorized by S. 1620.

IV. Some Special Problems Raised in the Hearings

It is pointed out that some witnesses objected to the grant-in-aid pattern embodied in the bill. The committee felt that the bill would appear to follow a fundamentally sound principle when it leaves to the states the decision as to the population groups to be served by their plans. The committee has under consideration the question of providing funds for federal support of professional education, administrative training and research. The committee is prepared to make the intention of the bill to provide for health education of the public clear and specific.

There is much discussion of the recommendation that one federal agency should administer medical affairs. It is pointed out that further study is required on the matter of the relationship between the Federal Security Administration and the Children's Bureau of the Department of Labor and between them and other federal agencies. There is also the question of having a single federal advisory council or a national health council instead of several federal advisory agencies.

The committee considered particularly the question of the protection of minority population groups and asserts that the committee believes that there should be just and equitable allocation of funds according to the needs for services.

On the question of the eligibility of practitioners from various schools of healing, the committee states that it is impressed by the fact that the licensing and regulation of practitioners in medicine and allied fields have always been within the jurisdiction of the states and not under the federal government, and the committee feels that the powers should be left in these states as at present and that therefore the bill should not include any specifications on these points except a provision to the effect that nothing in the bill should be construed as infringing on the authority of each state to continue to regulate the practice of the healing arts.

On the question of the construction of hospitals, the committee states that this title is not intended to lead to any unsound activity. Before any new hospital construction is undertaken, the available beds in qualified, existing, nongovernmental and governmental hospitals should be used provided the type of service meets accepted standards and the charges for the use of such beds are reasonable. The committee says "We have no intention whatever of endorsing any proposal that would encourage the building of hospitals where adequate facilities exist or that would encourage the building of public hospitals where private hospital construction would in the normal course of events meet community needs." It says "Furthermore, our committee intends to prepare amendments to title 12 to assure that federal aid under this title will require unequivocally clear showing of need through impartial state and local surveys, and clear satisfaction of federal requirements that such needs exist, in addition to reasonable demonstration as to future continuing support of the hospitals." The report says that "the committee is agreed that the bill should be amended by addition of positive provisions that qualified hospitals and agencies, both public and private, may be utilized in the state plans."

V. Conclusion

"S. 1620 has received wide support from large and representative organizations. Its objectives are noncontroversial. Our government is dedicated to promoting the welfare of the people and the protection and improvement of health and well-being. Making available to all of the people the great life-saving services which modern medicine has to offer is an objective which every right-thinking citizen supports.

"The committee is convinced that federal legislation along the general lines followed by S. 1620, based upon federal-state cooperative programs, is necessary to strengthen the health services of the nation and to make provision for the progressive and effective improvement of health conditions in all parts of the country and among all groups of people. The needs are large and an adequate program to put knowledge and skill more effectively to work will involve considerable expenditures of funds. The program must therefore be worked out with great care. We are confident that such a program can be worked out and that the expenditures will be sound national investments which will bring large returns. The role of the federal government should be primarily to give technical and financial aid to the states.

"A critical analysis of the present provisions of S. 1620 shows a number of points at which its specific purposes can be more clearly stated and its provisions improved. The committee has not yet reached any conclusions concerning the precise rate at which federal appropriations should be increased, but the committee is agreed on the general principle that the proportion of federal assistance should be greater to those states in which there is the greatest need for the services contemplated under the bill. The committee is prepared to augment the provisions of the bill—if additional provisions are needed—to assure that the amount of federal assistance would in no instance be in excess of clearly demonstrated need.

"Some misunderstandings seem to have arisen and criticisms have been expressed concerning parts of the bill. Some witnesses have assumed that it would bring about revolutionary or dangerous changes in medical care. We think these fears are unwarranted, but we will welcome further suggestions as to specific amend-

ments which may safeguard the objectives of the bill. Medical science has reached a commendable status in this country. The bill should encourage the further evolutionary development of medical science, teaching and practice.

"The committee has received the assurances of many lay and professional groups that they will be prepared to furnish further information and suggestions. We expect to consult further with representatives of these groups.

"We have not yet had adequate time to make exhaustive study of all of the problems involved in the legislation proposed by S. 1620. The committee will continue its study of S. 1620 so that a definitive report on the proposed legislation can be submitted soon after the beginning of the next session of the Congress."

RESPONSIBILITY FOR GRADUATE EDUCATION

Abridgment of editorial on Graduate Education, appearing in the New England Journal of Medicine **221**: 118 (July 20) 1939.

There can be no question that the recent growth and development in the art and science of medicine requires practicing physicians to keep abreast of the times. In a recent discussion of graduate education in medicine, Abell [1] calls attention to the increasing need for graduate teaching, which he properly divides into two categories: the one dealing with the preparation and training of specialists, the other concerned with the continued education of those already in active general practice.

This is an age of specialization, and the trend in this direction may well have gone too far. It seems certain, in any event, that entirely adequate means are already at hand to train, through the medium of postgraduate residencies, men properly equipped with an advanced and detailed knowledge of some particular field in medicine. We need have no fear of the lack of specialists. We may possibly view with some apprehension their increasing number.

The more difficult problem is that of aiding the doctor who earnestly desires to add to his medical knowledge and improve his skill as a general practitioner among his fellow men.

It is often assumed that this burden rests entirely on the shoulders of the medical profession. Abell suggests that intramural courses, consisting of bedside lectures, be given by medical schools and connected hospitals and that demonstrations and clinical expositions covering topics which the physician meets in his daily work be offered under the auspices of the various county societies. The implication appears to be that if such courses are offered they will be taken to full advantage and with much enthusiasm by the practicing physician, be he urban or rural. This in many instances proves to be the case, as is shown by the attendance at the various postgraduate meetings held throughout the country. Yet in other instances the reverse is unquestionably true. Instructor physicians of note and ability have been prepared in advance for an audience of a hundred or more and been met by the local chairman, three undergraduate students with an eye to adventure and four graduates whose interest was slight and whose attention was nil.

The proper and adequate preparation of a graduate course in medicine—whether it be in the form of didactic lectures or bedside clinics—is at best difficult. No instructor, however experienced, can go forth unprepared and serve up an intellectual menu which is both palatable and nourishing. Time and thought and energy and patience must be expended if graduate instruction is to bear fruit. On the other hand, the physicians for whom the instruction is planned must have a sincere desire to learn and a great willingness to cooperate in any projected program.

The medical profession has, in a sense, assumed a moral obligation to supply opportunities for the acquisition of further knowledge to those who seek it. Let it shoulder this obligation squarely and sanely. But the practicing physician who would take advantage of this graduate education in medicine—be he old or be he young—must likewise do his share or the seed falls on barren ground. The obligation to teach is no greater than the necessity of keeping intellectually fit.

1. Abell, Irvin: The Aims of the Medical Profession as They Relate to the Public, J. A. M. A. **110**: 2041 (June 18) 1938.

MEDICAL LEGISLATION

MEDICAL BILLS IN CONGRESS

Changes in Status.—The President has signed the following bills: S. 1899, providing for the detail of a commissioned medical officer of the Public Health Service to serve as assistant to the Surgeon General; H. R. 6555, amending the law relating to the advance of funds in connection with the enforcement of acts relating to narcotic drugs so as to permit such advances in connection with the enforcement of the Marihuana Tax Act of 1937; H. R. 6556, providing for the seizure and forfeiture of vessels, vehicles and aircraft used to transport narcotic drugs, firearms, and counterfeit coins, obligations, securities and paraphernalia; and H. R. 6635, amending the Social Security Act and authorizing an increase in appropriations for maternal and child health services and services for crippled children, under the supervision and control of the Children's Bureau, and in appropriations for public health activities, under the supervision and control of the Public Health Service. The Senate has concurred in the House amendments to S. 1540, proposing to increase the compensation of members of the National Advisory Health Council not in the regular employment of the government.

Bill Introduced.—H. R. 6954, introduced by Representative Randolph, West Virginia, proposes to authorize the Secretary of the Treasury to pay $100, $90.98 and $9 respectively to Dr. J. D. Spencer, the Somerset Community Hospital and Adelaine Deitz, a registered nurse, in full settlement of their claims against the United States for surgical, medical, hospital and nursing services rendered by them to an officer of the United States Infantry Reserve, who was stricken with appendicitis while on leave of absence from active duty with the Civilian Conservation Corps.

DISTRICT OF COLUMBIA

Changes in Status.—The President has signed the following bills: H. R. 4732 and H. R. 4733, respectively providing for the issuance of a license to practice chiropractic in the District of Columbia to George M. Corriveau and to Laura T. Corriveau; and H. R. 7086, providing for insanity proceedings in the District of Columbia. S. 2745 has passed the House, authorizing the Commissioners of the District to promulgate and enforce all such reasonable rules and regulations as they may deem necessary to prevent and control the spread of communicable diseases in the District of Columbia. S. 2779 has passed the House, proposing to eliminate from the healing arts practice act in the District of Columbia the requirement that examinations be held on the second Monday in January and July of each year and to provide that such examinations may be held at such times as the Commission on Licensure to Practice the Healing Art may by rule or by special order determine.

Bill Introduced.—H. R. 7024, introduced by Representative Martin J. Kennedy, New York, proposes to authorize and direct the Commission on Licensure to Practice the Hearing Art in the District of Columbia to issue a license to practice the healing art in the District of Columbia to Dr. Marcel T. Kahn, Washington, D. C.

MEDICAL ECONOMIC ABSTRACTS

STATE MEDICINE VERSUS HEALTH INSURANCE IN ENGLAND

A possible indication that dissatisfaction with health insurance in England is reaching the point where it may cause the introduction of a system of state medicine is offered by a debate which recently took place in London. In this debate Mr. Somerville Hastings and Dr. D. Stark Murray proposed the motion "that the institution of a whole-time state medical service would be in the interest of the nation's health." This was opposed by Sir Henry Brackenbury and Dr. Frank Gray.

The debate in full, together with the general discussion that followed, is reported in the *Post-Graduate Medical Journal* (**15**:112-129 [April] 1939). The trend of the debate and the attitude of the debaters, as shown in the extracts that follow, suggest certain opinions and conditions that illuminate some discussions that are taking place in this country.

Mr. Hastings closed his introductory address with the statement:

> To sum up then, there is no rational stopping place between the first beginnings of preventive medicine and a fully developed state medical service. If we want to prevent we must treat as well, and if we want to treat intelligently, we must make provision for correct diagnosis and for the recognition of disease at its earliest beginning.

Dr. Murray laid the foundation of his argument for state medicine with the following statements:

> I need only remind you of the recently published report on Tuberculosis in Wales to confirm the opinion that not only is the health of the nation in a serious condition but that it can be improved only by radical changes—not only by attending to the sick but by interfering with the environment of the healthy.
>
> Of course the British Medical Association had already convinced most of us that the present organization of our medical services cannot cope with the problem of the nation's health and that the greater part of our population, working-class and middle-class does not receive an adequate medical service. It has even tried to convince the general public that environmental changes will be needed before disease can be conquered but, refusing to look even its own facts in the face, puts forward a scheme which would perpetuate many of the worst features of the present-day position.

Sir Henry Brackenbury, in opposing the motion, makes the following plea for free choice and personal relations between the doctor and the patient:

> If I believed that we could deal with either medicine or people in this simple and mechanical fashion I might be inclined to agree with him, for skilled detection and a facility for prescribed classification may be admirable qualities in an official. The truth, on the contrary, is that the general practitioner is dealing not primarily with diseases but with patients; and that a patient is not merely a biological organism but also, at the same time and all the time, a human personality, and a unit in a social system. His doctor should be to him, therefore, not just a disease discoverer and curer but a health adviser, a sympathetic helper, and an understanding friend. The doctor must, of course, have skill and scientific knowledge in a high degree, but to discharge his functions satisfactorily he requires qualities beyond this. It is on account of this threefold character and threefold need of the patient that the general practitioner or family doctor must be made the basic factor of any national medical service, and not merely be an accessory called in to perform certain limited functions. When a person, whether well or ill, feels that he needs health advice or attention, it is wiser that he should seek it primarily via his own doctor rather than via the town clerk, the hospital secretary, or even the medical officer of health. It is, I agree, the state's business to see that everybody is able to secure such a doctor-patient relationship, and to obtain through the general practitioner all such ancillary, consultant, and institutional services as are in his case necessary. It is not impossible to provide a general practitioner service with even wider functions than those contemplated by Mr. Somerville Hastings on a whole-time salaried basis, but there are reasons which show that such a basis must be less satisfactory than any other, whether that other be financed on an insurance system or in some alternative way. Such basis, whatever may be the details of the structure built upon it, may best be described as "free-contract."
>
> Essential conditions for satisfaction and success in such a doctor-patient relationship as I am postulating are that it shall be spontaneous, free, and continuous or enduring.

His further remarks constitute a rebuke to those in this country who underestimate the value of freedom of choice:

> I am aware, too, that there are those who attach very little importance to this freedom of choice. I do not agree with them. I regard it as essential to the establishment of the best relation between patient and doctor; and it must be noted that it is not the wisdom or propriety of the original choice which is of the essence of the matter but rather the freedom to change one's doctor at any time should sufficient reason arise.

Dr. Frank Gray, in supporting Sir Henry Brackenbury, said, in regard to the preventive work of health insurance:

> Take National Health Insurance, which, Mr. Hastings admitted, did not fit very neatly into his classified scheme. National Health Insurance has been in existence for twenty-five years, and the Ministry of Health for twenty years. There are 19,000 doctors in National Health Insurance, with no financial interest in the ill-health of their patients. Yet it is a startling fact that the only efforts which have been made during the whole of that time to provide special instruction in preventive medicine for those doctors have been made by two groups of London doctors and not by the Ministry. Could there be a more damning indictment of a government department than to say that for twenty years it has entirely neglected the preventive possibilities of the vast organization it controls?

He concluded:

> The future rests with the individual, and the person best able to keep the individual in good health is the doctor who knows him and whom he trusts—his own family practitioner.

In the general discussion which followed, Mr. John Bunyan, a dental surgeon, said:

> Then there is the question of National Health Insurance. The conditions may be bad enough for the medical practitioner, but for the dental practitioner they are worse. He is dictated to by the insurance societies, the biggest racketeers of modern times; also by persons whose qualifications appear to be little more than gray hairs and who are allowed to determine the type of treatment to be given to patients. What is more, this treatment is not based on what is best for the patient, it is based on the requirement that it must be the cheapest possible. I have been told by the Ministry of Health that this is an industrial service and that therefore they want it on the cheapest basis. Surely in a nation like ours what is necessary for the national health should be the best that could be obtained, not the cheapest.

Dr. Dennis O. Clark, who characterized himself as "one of those Cinderellas of medicine—the general practitioner," described the work of such physicians under insurance as follows:

> In the first place, our work at present is very largely rush work. We work long hours, and ordinarily we can give a very short time to each patient. We have to do it entirely on our own, for there is very little cooperation between practitioners. If we send a patient into hospital we lose sight of him until he comes out again with a most cursory note. I have in my practice patients such as diabetics and heart cases who refuse to go to hospital and cannot afford a consultant. Then, again, a general practitioner is liable to miss a great many symptoms and signs owing to the rush with which his work has to be done. I have tried to take notes for a year or two now of every case I see, and I find that if I see only fifty patients a day I can take sufficient notes for the consultant in any given case to say "Well, this doctor keeps decent notes." But if the number of patients to be seen in a day goes up to seventy-five one's work in this respect deteriorates. One can only get down the name and address of the patient and a quick diagnosis; while in an epidemic, when one may see 100 patients a day, one cannot do even that.

Dr. H. H. MacWilliam sounded like some of the advocates of sickness insurance in this country when he said:

> Very few people would dispute the fact that at present the general public are not receiving the medical treatment they need, and the problem is to direct the work of doctors in channels that would be most productive and give the best results.

Dr. E. M. Dimock thinks that "if one examines the alternative to a state medical service, namely, the B. M. A. plan for dependants, it looks . . . very like patchwork." He said concerning graduate work under sickness insurance:

> I am sure that the present postgraduate facilities under the National Health Insurance system are only a tit-bit, and something much more radical is required to increase the efficiency of the general practitioner. As it is, our expensive education is largely wasted.

Mr. Hastings, in closing the debate, said:

> In speaking at the beginning I avoided the B. M. A. scheme because I thought of it as merely an extension of the panel system to the wives and dependents of insured. How will that panel be appointed? How are insurance doctors appointed now? By the sale of practices, some of those who purchase the practice having the money themselves, and others borrowing it from moneylenders. The widow of the previous doctor is the only person who has any real free choice of doctor in the district. She sells the panel to the doctor she chooses, and such is the inertia of human nature that 90 per cent of the patients take on the doctor to whom they have been sold. Do you think you can have a decent medical service when the people in it buy their appointments?

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ALABAMA

Changes in Health Officers.—Dr. Herbert A. McClure, Butler, health officer of Choctaw County, has been appointed to a similar position in Lamar County, with headquarters in Vernon. He succeeds Dr. Daniel R. Brown, resigned.——Dr. Robert K. Wilson, Dothan, has been appointed health officer of Pickens County, succeeding Dr. Horace C. Hunt, Livingston, who resigned to enter the private practice of medicine.

Regional Meeting.—At a meeting of the Northeastern division of the Medical Association of the State of Alabama in Sylacauga June 22 the speakers included:

Dr. James O. Finney, Gadsden, Complications of Peptic Ulcer.
Dr. Frank C. Wilson, Birmingham, Carcinoma of the Colon.
Dr. Virgil P. W. Sydenstricker, Augusta, Ga., A Typical Deficiency Syndrome.
Dr. Joseph T. Banks, Dadeville, Meningitis: Treatment with Sulfapyridine; Report of Two Cases.
Dr. Chalmers H. Moore, Birmingham, Diagnosis of Brain Tumors.
Dr. Sumner D. Davis II, Talladega, Placenta Accreta.

ARKANSAS

Society News.—At a meeting of the Jefferson County Medical Society in Pine Bluff recently Drs. Herbert Fay H. Jones, Little Rock, spoke on "Etiology and Significance of Hematuria"; John W. Smith, Little Rock, "Removal of Foreign Bodies from Stomach and Respiratory Tract," and Frederick W. Hames, Pine Bluff, "Skin Cancer, Prophylaxis and Treatment."——The Benton County Medical Society was addressed at Siloam Springs recently by Drs. Charles T. Chamberlain on "Deficiency Diseases"; Ralph E. Weddington, "Summer Diarrheas," and William O. Arnold, "Treatment of Bronchiectasis." All are of Fort Smith.——Dr. Herman W. Hundling, Little Rock, discussed "Diverticulosis and Diverticulitis of the Bowel" before the Pulaski County Medical Society recently.——At a recent meeting of the Union County Medical Society Drs. Rufus B. Robins, Camden, presented "A Review of the Treatment of Acute Head Injuries" and David Harvey Shipp, Little Rock, "Surgical Treatment of Pulmonary Tuberculosis."

New Head of Crippled Children's Division.—Dr. Ellery C. Gay, Little Rock, has been appointed medical supervisor of the crippled children's division of the state department of public welfare, serving on a part time basis. He succeeds Dr. Lee Vallette Parmley, resigned. Dr. Gay was formerly a member of the staff of the division. New plans under consideration feature expanded services to crippled children throughout the state, provide for the use of six hospitals in treating crippled children and a convalescent home for after-care. The institutions are the Arkansas Children's, Baptist State and the city hospitals and St. Vincent's Infirmary, Little Rock; Davis Hospital, Pine Bluff, and Leo N. Levi Memorial Hospital, Hot Springs. The convalescent home is in Little Rock. More than 800 crippled children are receiving care, treatment or supervision by the division, it was stated; more than 1,500 have been registered and examined, as compared with the 330 patients who were being cared for in February 1938. A survey is also being planned to determine the number of crippled children in the state.

CALIFORNIA

State Medical Library Taken Over by University.—The California State Medical Library was discontinued June 30. Its work is being carried forward by the University of California Medical Center Library, San Francisco, according to the *Bulletin* of the Los Angeles County Medical Association. The subscription lists from the Los Angeles branch are being transferred to the medical center library and the periodicals are being circulated from San Francisco to the state medical library subscribers all over the state. The university library has received an additional appropriation from the regents for this work. The publications purchased under the state medical library funds will remain on deposit in the university. At Los Angeles they will remain at the medical department in the custody of Bennett M. Allen, Ph.D. It is planned to maintain the files of these periodicals at Los Angeles from duplicates acquired in the medical center library.

FLORIDA

Clinical Conference.—The fifth annual clinical conference of the Florida section of the Southeastern Surgical Congress, in cooperation with the Marion County Medical Society and the Munroe Memorial Hospital, Ocala, will be held in Ocala August 24. The program will consist of the presentation of cases and case reports followed by discussions from the floor. There will be no set papers. Included among the speakers will be:

Dr. Edgar F. Fincher, Atlanta, Ga., Head Injuries.
Dr. William A. Selman, Atlanta, Tumors of the Breast.
Dr. Turner Z. Cason, Jacksonville, Errors Which May Lead to Unnecessary Surgery.
Dr. Robert L. Sanders, Memphis, Tenn., president of the congress, Diagnosis and Management of Surgical Lesions of the Colon.
Dr. Benjamin T. Beasley, Atlanta, secretary of the congress, Aims of the Southeastern Surgical Congress.
Dr. John S. Turberville, Century, president-elect, Florida Medical Association, Complications in Gallbladder Surgery.
Dr. Julian K. Quattlebaum, Savannah, Ga., Surgical Treatment of Gastric and Duodenal Ulcers.
Dr. Grady O. Segrest, Mobile, Ala., Cardiac Irregularities as Related to Surgery.

GEORGIA

Society News.—Dr. Robert B. Greenblatt, Augusta, discussed "Study and Treatment of Amenorrhea and Menometrorrhagia" recently before the Macon Medical Society of Bibb County. Dr. John D. Bradley, Macon, read a paper before the society July 4 on "Bronchial Asthma."——At a recent meeting of the Georgia Medical Society, Savannah, Drs. Charles C. Hedges, Suffolk, Va., read a paper entitled "The Control of Advertising and Its Integration with the Health Program" and Dr. Edward J. Whelan, Savannah, presented a case report on "Intracapsular Fracture of the Neck of the Femur."

County Society Joins Antisyphilis Campaign.—At a meeting of the Fulton County Medical Society, resolutions were adopted requesting the members to cooperate in the control and proper treatment of syphilis. A minimum fee of $1 a treatment was established, higher fees to be charged in accordance with the patient's ability to pay. Participation in the program is voluntary on the part of the members of the society. The state department of health has made available free antisyphilitic drugs for the treatment of all patients, regardless of their financial status. Free laboratory diagnostic services are also available through the central laboratory at the state capitol in Atlanta and the two branch laboratories in Waycross and Albany.

District Meeting.—At the summer meeting of the First District Medical Society in Savannah July 19 the speakers included Drs. Exum B. Walker, Atlanta, on "Sciatica: Its Cause and Treatment"; Lehman W. Williams, Savannah, "Operation for Anal Incontinence"; Leonard J. Hahne and Julian K. Quattlebaum, Savannah, "Operation for Fibroid Tumor"; James G. Lyerly, Jacksonville, Fla., "Some Neurosurgical Considerations of Epilepsy"; Robert Randolph Jones Jr. and Donald S. Martin, both of Durham, N. C., "Value of Sterilization of the Operating Room Air by Ultraviolet Light," and William H. Myers, Savannah, president, state medical association, "Relation of the County Medical Society to the Community."

IDAHO

State Medical Meeting at Boise.—The forty-seventh annual meeting of the Idaho State Medical Association will be held at the Owyhee Hotel, Boise, August 23-26, under the presidency of Dr. Frank C. Gibson, Potlatch. The guest speakers, all members of the faculty of Washington University School of Medicine, St. Louis, will give several addresses each, as follows:

Dr. Franklin E. Walton, Surgical Significance of Jaundice; Modern Trends in Medical Education.
Dr. David P. Barr, Influence of the Pituitary Gland on Bodily Function and Disease; Clinical Management of Lobar Pneumonia; Vitamins and Their Clinical Importance; Diagnosis and Treatment of Parathyroid Disease.
Dr. Alexis F. Hartmann, Infant Feeding; Present Status of Chemotherapy with Sulfanilamide and Derivatives; Practical Aspects of Parenteral Fluid Administration; Present Status of Prophylactic and Immunizing Procedures Against the Acute Infectious Diseases.
Dr. Otto H. Schwarz, Management of Breech Presentation; Cesarean Section; Puerperal Infection; Toxemias of Pregnancy.
Dr. Nathan A. Womack, Carcinoma of the Lung; Surgical Treatment of Fractures of the Femur; Tumor of the Breast; Pathology of Cholecystography with Relation to Symptoms.
Dr. Sherwood Moore, Hyperostoses of the Skull and the Associated Symptom-Complex; Present Day Methods of Irradiation of Malignant Surface Lesions; An Appraisal of Cholecystography Over a Fifteen Year Period; Body Section Radiography with the Laminagraph Demonstration of a Simple Modification.

The annual golf tournament will be played Friday afternoon August 25 and the annual banquet will be Thursday evening. The Woman's Auxiliary will hold its meeting during the association's meeting.

ILLINOIS

Society News.—At a meeting of the Madison County Medical Society in Alton August 4 the speakers were Drs. Isaac A. Abt, Chicago, on "Infant Feeding First Two Years"; John F. Carey, Joliet, "Treatment of the Sick Infant," and Franklin J. Corper, Chicago, "Respiratory Tract Infections in Children."

Health Exhibits at the State Fair.—State fair visitors were invited to have free blood tests made by the state department of health during the week of the fair, August 12-19. Code numbers were used instead of names in order to keep the results confidential. A special laboratory was established on the grounds and the visitors were invited to see the process and hear it explained by a lecturer. The department also conducted a "better babies conference" and presented numerous exhibits and demonstrations. Among the latter were an exhibit on pneumonia, models showing care of patients with contagious disease, a modern swimming pool and a giant tooth showing principles of dental hygiene.

Chicago

A Year Without a Maternal Death.—There were 2,748 deliveries without a maternal death in the Chicago Lying-In Hospital of the University of Chicago during the fiscal year ended June 30. In 571 deliveries of the hospital's home service there was but one death.

Personal.—Arnold F. Emch, Ph.D., has resigned as executive director of the Chicago Hospital Council to become assistant secretary of the American Hospital Association. —— Sr. Surg. William H. Slaughter has been appointed medical officer in charge of the U. S. Marine Hospital, succeeding Dr. Mark J. White, who retired May 1. Dr. Slaughter comes from a similar post in New Orleans, where he was succeeded by Dr. Lionel E. Hooper, Honolulu. —— Dr. Clement C. Clay, medical assistant to the director, University of Chicago Clinics, has resigned to become administrator of St. Barnabas Hospital, Minneapolis, succeeding Samuel W. Rice, resigned.

INDIANA

Regional Conferences Continued.—A postgraduate conference on obstetrics was held at St. Mary's Hospital, Evansville, August 8, for physicians in the First District Medical Society of the state medical association under the auspices of the Vanderburgh County Medical Society. This session was one of a series of conferences conducted on the second Tuesday of each month. The speakers at the August program included Drs. Carl P. Huber, resident adviser and research director in obstetrics and gynecology, Indiana University School of Medicine, Indianapolis, on "Toxemias of Pregnancy," and Nicholson J. Eastman, professor and director of the department of obstetrics, Johns Hopkins University School of Medicine, Baltimore, "Hemorrhage During Pregnancy and Labor." Subsequent monthly programs will be devoted to pediatrics, tuberculosis, traumatic surgery, orthopedics and pneumonia. The Grant County Medical Society held the first of these regional conferences June 13-15 in Marion.

MAINE

Members of Medical Board.—With recent appointments by Gov. Lewis O. Barrows, the Maine Board of Registration in Medicine is now made up of the following: Drs. John G. Towne, Waterville, chairman; Adam P. Leighton, Portland, secretary; George R. Hagerthy, Bar Harbor; Oscar R. Emerson, Newport; Franklin A. Ferguson, Portland, and Currier C. Weymouth, Farmington. Dr. Ferguson fills the vacancy left by the death of Dr. Ralph D. Simons, Gardiner, and Dr. Weymouth was appointed to succeed Dr. Robert J. Wiseman, Lewiston. Dr. Leighton is serving his twenty-fifth year as a member and secretary of the board.

MARYLAND

Red Cross Blood Donor Service.—The volunteer blood donor service organized by the Baltimore chapter of the American Red Cross finished its first year July 1. The service enlisted 517 persons as volunteer donors. The chapter received 481 applications, of which 325 were honored as being legitimate claims and 305 donors were sent. Forty-nine of the donors were not used. The recipients were 198 patients in nineteen Baltimore hospitals; no requests were received outside of hospitals. The number of donations made was more than twice that which was anticipated. The service cost the chapter for operating expenses $9,532.08. This service has been guided by a special committee and aided by other committees of the chapter as well as by practically all the civic organizations in the city. Dr. Charles C. W. Judd is director of the blood transfusion bureau, which was established under the direction of Dr. John M. T. Finney Sr.

MASSACHUSETTS

Course in Public Health Engineering.—A new graduate course in public health engineering has been established at the Massachusetts Institute of Technology to consider such subjects as water supplies, water purification, sewerage, industrial waste disposal, stream pollution and purification and the sanitation of shellfish grounds. In addition, consideration will be given to the most advanced practice in the collection and disposal of refuse, sanitation of swimming pools, rural communities and camps, as well as the sanitation of food supplies, stores and restaurants. Students will also receive instruction in the relationship of insects and rodents to disease, the atmosphere in relation to health and comfort, housing and health, school sanitation and industrial hygiene. There will also be training in the organization and activities of health departments, the collection, analysis and interpretation of vital statistics, epidemiologic methods, the value and conduct of public health surveys and the use of standard health appraisal forms. The course will begin with the opening of the school year September 25 and will lead to the degree of master of science in one year. Additional information may be obtained from Samuel C. Prescott, Sc.D., dean of science and head of the department of biology and public health at the institute, Cambridge, Mass.

MICHIGAN

Commission to Direct Fight on Infantile Paralysis.—Formation of the Michigan Poliomyelitis Commission to arrange consultation service for early diagnosis and prompt orthopedic care of patients in the current outbreak was announced August 10. Members of the commission are:

Dr. Edgar E. Martmer, Detroit, representing the American Academy of Pediatrics, chairman of the commission.
Dr. Henry Allen Moyer, state health commissioner, Lansing.
Dr. James D. Bruce, vice president in charge of postgraduate medical education, University of Michigan Medical School, Ann Arbor.
Dr. Stuart Pritchard, director of the W. K. Kellogg Foundation, Battle Creek.
Dr. Bernard W. Carey, Detroit, medical director, Children's Fund of Michigan.
Dr. Ledru O. Geib, Detroit, chairman of the preventive medicine committee, Michigan State Medical Society.
Dr. Harold Fenech, Detroit, member of the state crippled children's commission.
Dr. Albert S. McCown, deputy state commissioner of health, Lansing.
Dr. Carl E. Badgley, Ann Arbor, representing the Michigan Orthopedic Society.
Dr. Wayne S. Ramsey, Lansing, secretary, Michigan Crippled Children's Commission.
Mr. Edward H. Williams, Detroit, member, Wayne County board of auditors.

The commission has received $10,000 from the Michigan State Medical Society, the Michigan Society for Crippled Children, the Michigan Crippled Children's Commission, the Children's Fund, the Kellogg Foundation and the Wayne County board of auditors. The state has been organized into sixteen districts, in which consultation service will be maintained. County, city and district health officers will act as clearing agents in obtaining consultants for physicians. In twenty-three counties that do not have full time health service, the presidents of the county medical societies will arrange for the service. Headquarters of the service will be at 614 State Office Building, Lansing. The most recent report of cases for the state, issued August 10, showed that there were ninety-three cases from January 1 to July 31 and from August 1 to 10 there were eighty-six. Of the August cases, sixty-two were in Detroit and the others in counties outside the city as follows: Muskegon, one; Bay, two; Saginaw, three; Tuscola, one; Genesee, two; Oakland, eight; Wayne, six, and St. Clair, one. Twelve have been reported from Windsor, Ont., across the border from Detroit. Dr. Don W. Gudakunst, state health officer up to July 31, has joined the U. S. Public Health Service and has been assigned to represent the service in handling the Michigan epidemic.

MINNESOTA

Personal.—Dr. Donald C. Balfour, Rochester, was made an honorary fellow of the Royal College of Surgeons of England at a meeting July 13.——Dr. Herman E. Hilleboe, St. Paul, has been appointed chief of the medical unit in the social welfare division of the new state department of social security, newspapers recently reported. Dr. Hilleboe, who was director of the division of tuberculosis and services for crippled children under the defunct state board of control, will continue those functions in the new position and will also head the county tuberculosis sanatorium program and the work formerly

handled by the division of the deaf in the industrial commission. In addition, he will serve as consulting medical official in matters of aid to dependent children, old age assistance and other services in which medical advice is required by the social security set-up. Dr. Hilleboe was one of four United States delegates to the fourth World Conference of Workers for the Crippled held in London July 16-22, it is reported.

MISSOURI

New Professor of Pathology. — Dr. Robert A. Moore, associate professor of pathology, Cornell University Medical College, New York, has been appointed Edward Mallinckrodt professor of pathology at Washington University School of Medicine, St. Louis, it is reported. Dr. Moore graduated at the Ohio State University College of Medicine, Columbus, in 1928.

Physician Honored.—A barbecue was held by the Boone County Medical Society recently at the Pinnacles north of Columbia to mark the retirement of Dr. Frank G. Nifong, Columbia, after fifty years in the practice of medicine. About 150 guests from all parts of the state attended, according to the state medical journal. He was presented with a medallion. Dr. Nifong graduated at the Missouri Medical College in 1889. In 1905 he left his practice in St. Louis to join the faculty of the University of Missouri School of Medicine at Columbia but resigned after three years to devote his full time to the practice of surgery. For the last twelve years Dr. Nifong has been in charge of the health program at Stephens College, Columbia. In 1927-1928 Dr. Nifong was president of the Missouri State Medical Association and in 1933 of the Boone County Medical Society.

NEBRASKA

Personal.——Dr. Floyd H. Kinyoun has resigned as health officer of Omaha to enter private practice in Los Angeles, it is reported.——Dr. Victor E. Levine, professor of biological chemistry and nutrition and head of the department, Creighton University School of Medicine, Omaha, is on his fifth trip to the Arctic, continuing his medical and biologic research on the Eskimo, under the auspices of the U. S. Public Health Service. His base is Kotzebue, north of the Arctic Circle.——Dr. Herbert B. Kennedy, Omaha, has been appointed medical director of the Woodmen of the World Life Insurance Company.

NEW YORK

Society News.—The semiannual meeting of the Franklin County Medical Society was held at Saranac Lake recently with the following speakers: Drs. William Warriner Woodruff on "Fractures of the Neck of the Femur"; LeRoy H. Wardner, "Sulfapyridine in Pneumonia"; Edwin M. Jameson, "Some Common and Uncommon Urological Conditions," and John R. Murphy, "Pyloric Stenosis in the Newborn." Drs. A. J. Vorwald and Daniel M. Brumfiel conducted a pathologic conference.——Dr. James F. Rooney, Albany, and Carl S. Salmon, attorney-at-law, Amsterdam, addressed the Medical Society of Montgomery County June 20 at Canajoharie on "Modern Concept of Coronary Disease" and "Medical Jurisprudence" respectively.

New York City

Faculty Changes at New York University.—Dr. John C. A. Gerster has been appointed clinical professor of surgery at New York University College of Medicine. The following promotions have also been announced:

Drs. Currier McEwen, Elaine P. Ralli, William Goldring and Norman H. Jolliffe, to be associate professors of medicine.
Drs. Herbert Chasis and Evan W. Thomas, assistant professors of medicine.
Drs. Morris Block and Marshall S. Brown Jr., assistant professors of clinical medicine.
Drs. William Howard Barber and George A. Koenig, associate professors of surgery.
Dr. Louis C. Lange, clinical professor of surgery.
Dr. Frank C. Combes, associate professor of dermatology and syphilology.
Dr. Evan W. Thomas, assistant professor of dermatology and syphilology.
Dr. Arno E. Town, assistant clinical professor of ophthalmology.
Dr. Amedeo S. Marrazzi, assistant professor of pharmacology.
Dr. Abram Blau, assistant clinical professor of psychiatry.

Unlicensed Practitioners Prosecuted.—Balbino F. Fernandez, Long Island City, was recently convicted of practicing medicine without a license, the state board of medical examiners reports. He was sentenced to pay a fine of $250 or spend thirty days in prison; in addition he received a sentence to three months in the workhouse, with execution suspended pending good behavior. Guiseppe Santangelo, 339 East One Hundred and Eighth Street, was convicted on the same charge June 9. His sentence was a fine of $200 or sixty days in the city prison and, in addition, six months in the workhouse with execution of this sentence suspended. Benjamin B. Brown, a pharmacist, was convicted July 28 of practicing medicine without a license; he was sentenced to spend sixty days in the workhouse, with the sentence suspended.

Gastrointestinal Disease Among Nurses. — Two outbreaks of gastrointestinal disturbance in hospitals have recently been reported. At Mount Sinai ninety-three nurses were ill of bacillary dysentery in an outbreak that began June 22. In a statement published in the New York *Medical Week*, July 15, Health Commissioner John L. Rice reported that in addition to the ninety-three nurses who had been ill about sixty others had been found harboring the dysentery bacillus. A dysentery bacillus carrier was found among the food handlers in the nurses' kitchen. No hospital patients were found to be infected. About fifty nurses and interns were briefly ill at Presbyterian Hospital about June 25, Dr. Rice reported. In the routine laboratory investigation Bacillus aertrycke was identified, but no evidence of infection among food handlers was found.

NORTH DAKOTA

Personal. — Dr. William H. Bodenstab, Bismarck, has recently been appointed medical adviser for the North Dakota Workmen's Compensation Bureau, according to the *Journal-Lancet*. —— Dr. John G. Lamont, Minneapolis, has been appointed superintendent of the Grafton State School, Grafton, to succeed Dr. Frank W. Deason, resigned.

OHIO

Annual District Meeting. — The Eighth District of the Ohio State Medical Association held its annual spring meeting in June for the twelfth year at Rocky Glen Sanatorium, McConnellsville. The occasion was made a celebration of the twentieth anniversary of Dr. Louis Mark's association with the sanatorium as medical director. Several members of the staff have also been with the institution twenty years. Speakers on the scientific program were Drs. Theodore T. Zuck, Cleveland, on "Relation of the Fertile Time to the Menstrual Cycle"; Verne A. Dodd, Columbus, "Disease of the Stomach from the Surgical Viewpoint" and Judson D. Wilson, Columbus, "Low Back Pain."

OREGON

Personal.—Dr. Horace G. Miller, recently on the staff of the Oregon State Hospital, Salem, has been appointed superintendent of the Oregon Fairview Home for feebleminded.—— Dr. Eugene W. Rockey, Portland, has been appointed chief of staff of the Industrial Accident Commission, succeeding Dr. Louis P. Gambee. Dr. Rockey held this position once before. —— Dr. Richard H. Wilcox, Pierre, S. D., has been appointed health officer of Umatilla County to succeed Dr. Alfred H. MacLaren, who will enter private practice in California.

SOUTH CAROLINA

Annual Piedmont Assembly.—The fifth annual Piedmont Postgraduate Clinical Assembly will be held in Anderson September 19-21, with afternoon and evening sessions. The first afternoon the speakers will be:

Dr. Virgil P. W. Sydenstricker, Augusta, Ga., Incomplete Deficiency Syndromes.
Dr. Robert Wilson Jr., Charleston, Diabetes and the Use of Protamine Insulin.
Dr. Angus Murdoch McBryde, Durham, N. C., The Premature Infant.

In a symposium on pathology the speakers announced are:

Dr. Thomas R. W. Wilson, Greenville, Pathology—Looking Backward Thirty Years.
Dr. Edgar R. Pund, Augusta, Ga., Ovarian Tumors.
Dr. Ernest B. Saye, Spartanburg, Tetanus.
Dr. James M. Northington, Charlotte, N. C., Avitaminosis.
Dr. Roy R. Kracke, Emory University, Ga., Effects of Analgesic Drugs on the Blood.

There will also be a symposium on cancer as follows:

Dr. Kenneth M. Lynch, Charleston, Some Things We Know About Cancer.
Dr. Hayes E. Martin, New York, Diagnosis and Curability of Intra-Oral Cancer.
Dr. John Shelton Horsley, Richmond, Va., Cancer of the Stomach and Small Bowel.
Dr. Le Grand Guerry, Columbia, Cancer of the Breast.

Dr. William Lloyd Aycock, Boston, will speak at an evening meeting on "Modern Conception of Contagious Diseases, Including Poliomyelitis" and Drs. Horsley and Oren Moore, Charlotte, N. C., on "Cancer of the Colon and Rectum" and "Indications for Performing Therapeutic Abortions and Sterilizing Operations" respectively.

TENNESSEE

Society News.—The Chattanooga and Hamilton County Medical Society held a special meeting July 12 at which the speakers were Drs. Robert S. Dinsmore, Cleveland, on "Tumors of the Neck"; Bernard H. Nichols, Cleveland, "Hydronephrosis," and Bela Lorincz, Ujpest, Hungary, "Functional Investigation of Contracted Pelvis."——Drs. Carter Hal Henard, Mosheim, and James T. Campbell, Greeneville, addressed the Greene County Medical Society, Greeneville, July 4, on hysteria and ectopic pregnancy, respectively.——Dr. Ethelbert C. Williams, Watertown, addressed the Wilson County Medical Society, Lebanon, in June on early diagnosis and radium treatment of cancer.——Dr. William C. Chaney, Memphis, among others, addressed the Gibson County Medical Society, Humboldt, recently on new methods of treating migraine.

TEXAS

Personal.—Dr. James Shirley Sweeney, Dallas, received the honorary degree of doctor of laws from Texas Christian University at the recent commencement.——Dr. Melvin L. Hutcheson, Denton, has been appointed health officer of Denton County.——Dr. James R. Barcus, Gladewater, has been appointed health officer of the town.——Dr. John G. Welch, Port Neches, has been made health officer of Beaumont.——Dr. Charles F. Hull, Carthage, has been appointed health officer of Panola County.

Dr. Red Honored.—The Harris County Medical Society and its Woman's Auxiliary gave a dinner at the Houston Club recently in honor of Dr. Samuel C. Red, Houston, a founder of the society, at the conclusion of fifty-two years of medical practice. Dr. Reuben M. Hargrove, Houston, was master of ceremonies and various speakers paid tribute to Dr. Red, who made the principal address of the evening. Dr. Red has twice served as president of the county society and has also been president of the State Medical Association of Texas and a delegate to the American Medical Association. He was born in Texas in 1861 and graduated from Jefferson Medical College, Philadelphia, in 1887. A feature of the evening was the presentation to the society of a portrait of Dr. Ashbel Smith, pioneer Texas physician who was a friend of Sam Houston and prominent in Texas history. The portrait was painted by Mrs. Anna Allen Wright, an adopted daughter of Dr. Red, who has written a biography of Dr. Smith.

VIRGINIA

Half a Century at State Hospital.—Dr. Joseph S. DeJarnette, superintendent of the Western State Hospital, Staunton, was honored at a luncheon and special meeting at the hospital July 21 for his completion of fifty years on the hospital staff. Governor Price, Dr. Hugh C. Henry, state director of hospitals, Richmond, and other public officials paid tribute to Dr. DeJarnette. About 300 persons attended. Dr. DeJarnette was graduated from the Medical College of Virginia in 1888 and began his career at the Western State Hospital the same year as third assistant physician. He became superintendent in 1906.

WASHINGTON

Golden Jubilee of State Association.—The Washington State Medical Association will celebrate its golden jubilee at its annual meeting in Spokane August 28-30 with headquarters at the Davenport Hotel and under the presidency of Dr. Harry E. Rhodehamel, Spokane. A special golden jubilee program will be held Tuesday afternoon August 29, at which Gov. Clarence D. Martin and other guests have been invited to speak. Dr. Olin West, Chicago, Secretary and General Manager of the American Medical Association, will be the principal speaker at an economic session. His subject will be "The American Medical Association: Its Organization and Purposes." Guest speakers for the scientific program are from the faculty of Washington University School of Medicine, St. Louis, and will give several papers each, as follows:

Dr. David P. Barr, Vitamin Therapy; Treatment of Lobar Pneumonia.
Dr. Alexis F. Hartmann, Present Status of Chemotherapy with Sulfanilamide and Sulfapyridine; Some Aspects of Parenteral Fluid Therapy; Some Aspects of Infant Feeding; Hypoglycemia in Infants and Children.
Dr. Sherwood Moore, Appraisal of Cholecystography Over Fifteen Year Period; Irradiation Treatment of Surface Malignancies; Hyperostoses of Skull and Associated Symptom-Complexes.
Dr. Nathan A. Womack, Indications for and Prognosis in Cholecystectomy for Cholecystitis; Newer Aspects of the Nature of Cancer.
Dr. Otto H. Schwarz, Puerperal Infection; Breech Presentations; Late Toxemias of Pregnancy; Cesarean Section.

The Golden Jubilee Banquet will be held Wednesday evening August 28. The Woman's Auxiliary will hold its eighth annual meeting during the three days of the association meeting. The program will include greetings from the officers, an address by Dr. West and one by Dr. Hartmann on "Prophylaxis Against Contagious and Infectious Diseases." Mrs. Richard E. Ahlquist, Spokane, is president of the auxiliary.

WEST VIRGINIA

State Medical Meeting and Election.—Dr. Frank V. Langfitt, Clarksburg, was elected president of the West Virginia State Medical Association at the annual meeting in White Sulphur Springs July 10-12. Drs. Thomas F. E. Bess, Keyser, and Alston G. Lanham, Ronceverte, were elected vice presidents. Guest speakers who addressed a general assembly were:

Dr. William Thornwall Davis, Washington, D. C., The Problem of Headache.
Dr. Edward Clay Mitchell, Memphis, Tenn., Sinus Disease in Children.
Dr. George E. Bennett, Baltimore, Bursitis and Other Painful Conditions of the Shoulder.
Dr. Thaddeus L. Montgomery, Philadelphia, Obstetric Problems with the Conflicting Interest of the Mother and Child.
Dr. William B. Porter, Richmond, Pathologic Physiology of Edema, with Special Reference to Its Treatment.
Dr. Donald E. Brace, Woodside, N. Y., The Significance of Oxygen to the Surgical Patient.
Dr. Charles W. Mayo, Rochester, Minn., Concentrated Oxygen and Its Therapeutic Application in Surgery.
Dr. William J. Engel, Cleveland, The Causes and Prevention of Preoperative Death in Prostatic Hypertrophy.
Dr. Jesse G. M. Bullowa, New York, Pneumonia Therapy.

At this session Dr. Robert J. Wilkinson, Huntington, delivered the annual oration on surgery on "The Surgeon's Responsibility in This Changing World" and Dr. Richard O. Rogers, Bluefield, the oration on medicine, "The Character and Significance of Heart Pain." Several of the guests addressed section meetings and meetings of special societies. The West Virginia Society of Industrial Physicians and Surgeons, the West Virginia Obstetrical and Gynecological Society and the West Virginia Heart Association held their annual meetings during the period of the association meeting.

PUERTO RICO

Ophthalmic Institute Opened.—The Ophthalmic Institute of Puerto Rico, established in 1937 by Drs. Luis J. Fernandez-Garcia and Ricardo F. Fernandez in San Juan, recently moved into a new building in Puerta de Tierra, near San Juan. The new institute, built at a cost of about $70,000, has four floors. On the first are the offices; on the second private rooms and an operating suite; on the third wards, and on the fourth living quarters for the resident staff. In the basement is a dispensary. Dr. Luis J. Fernandez-Garcia, a graduate of the University of Maryland School of Medicine in 1917, is director and chief surgeon and Dr. Ricardo F. Fernandez, a graduate of George Washington University School of Medicine, Washington, D. C., in 1931, is assistant surgeon.

GENERAL

Theobald Smith Award to Dr. Sabin.—Dr. Albert B. Sabin of the Rockefeller Institute for Medical Research was chosen to receive the Theobald Smith Award of $1,000 from the American Association for the Advancement of Science at the summer meeting in Milwaukee. The honor came to Dr. Sabin in recognition of his rapid method of typing in pneumonia and for a quick bedside test of a patient's probable resistance to the disease.

Society News.—New officers of the American Physicians' Art Association who took office July 1 include Drs. Henry N. Moeller, New York, president; Edward E. Woldman, Cleveland; Herbert L. Treusch, Atlanta, Ga., and Alfred Braun, New York, vice presidents. Dr. Raleigh W. Burlingame, San Francisco, is treasurer; Drs. Max Thorek, Chicago, and Francis H. Redewill, San Francisco, are recording and corresponding secretaries, respectively. The next exhibition of the association will be during the Annual Session of the American Medical Association in New York June 10-14, 1940.

Library Association Election.—Col. Harold W. Jones, librarian of the Army Medical Library, was elected president of the Medical Library Association at the annual meeting in Newark, N. J., in June. Dr. John M. Armstrong, St. Paul, was elected vice president and Miss Anna C. Holt, Boston, secretary. Miss Mary Louise Marshall, New Orleans, is chairman of the executive committee and new members are Miss Isabelle T. Anderson, St. Paul, and Mrs. Marjorie Hutchins Moore, Chicago, librarian of the American Medical Association. The 1940 meeting will be in Portland, Ore.

Steamship Passenger Develops Smallpox.—A passenger who boarded the S. S. *Saturnia* of the Italian Line in Lisbon, Portugal, and landed in New York August 1 developed smallpox August 3, the U. S. Public Health Service has reported. Local health authorities in the home towns of all the 450 passengers have been notified to examine the passengers and keep them under surveillance for fourteen days. It is believed that the disease was acquired in Lisbon, as the consular bill of health showed thirteen cases of smallpox in the city. The *Saturnia* had left New York en route to Italy before the case of smallpox was discovered but officials were notified by radio, and the crew of about 400 was vaccinated. All persons embarking at Lisbon will be vaccinated until further notice.

Longevity of Industrial Policyholders.—A new high point of 61.94 years for the expectation of life at birth for industrial policyholders of the Metropolitan Life Insurance Company was reached in 1938 as a result of the unusually favorable mortality conditions prevailing during that year, according to the *Statistical Bulletin*. By achieving this mark the group of insured wage earners and their dependents have established a gain of 15.31 years in their expectation of life at birth since 1911-1912, the earliest period for which a corresponding life table was prepared. Thus, in twenty-eight years, industrial policyholders have increased their average length of life (expectation of life at birth) by practically one third over the initial point, namely, 46.63 in 1911-1912. In the comparison with 1938 over 1937 it was found that, on the whole, the gain was somewhat greater among men than among women. In 1938 at age 5 white males had an expectation of life of 59.62 years, an increase of 1.18 years since 1937, while white females had an expectation of life of 63.77 years at age 5, a gain of 1.04 years since 1937. Corresponding gains for Negroes were 1.88 years in the case of males and 0.97 for females. According to the report, Negroes continue to fall behind white persons in their expectation of life by a sizable margin. Among males at age 5 the expectation of life for the Negroes is 5.59 years below that for white persons. Among females the difference is even greater, namely, 7.96 years. However, these differences become smaller with advancing age and at the high ages seem to vanish completely. On the whole, it was stated, longevity among industrial policyholders of the Metropolitan Life Insurance Company is gaining more rapidly than it is in the general population of the United States.

Rocky Mountain Medical Conference.—The second Rocky Mountain Medical Conference will be held at the Hotel Utah, Salt Lake City, September 5-7. The speakers will include:

Dr. Conrad J. Baumgartner, Los Angeles, Differential Diagnosis of Neck Pathology.
Dr. Robert H. Herbst, Chicago, Fibrosis of the Neck of the Bladder.
Dr. Waltman Walters, Rochester, Minn., Benign and Malignant Tumors of the Stomach.
Dr. Elliott P. Joslin, Boston, Complications of Diabetes.
Dr. Leo Buerger, Los Angeles, Pathology and Pathogenesis of Buerger's Disease.
Dr. John S. Lundy, Rochester, Minn., Local and Combined Anesthesia.
Dr. Isaac A. Abt, Chicago, Hormones in Relation to Growth and Development.
Dr. Herbert E. Schmitz, Chicago, Treatment of Cancer of the Uterus.
Dr. Ko K. Chen, Indianapolis, Cardiac Drugs of Plant and Animal Origin.
Dr. Eldridge L. Eliason, Philadelphia, Surgical Jaundice.
Dr. Elexious T. Bell, Minneapolis, Primary Hypertension and Hypertensive Nephritis.
Dr. Rudolf Schindler, Chicago, Clinical Gastritis.
Dr. Ralph K. Ghormley, Rochester, Ununited Fractures of Both Bones of Forearm.
Arthur H. Smith, Ph.D., Detroit, Metabolic Significance of the Vitamins.
Dr. Alexander Marble, Boston, Diabetic Coma and Its Treatment.
Dr. Brien T. King, Seattle, A New Function-Restoring Operation for Bilateral Abductor Cord Paralysis.
Dr. Arthur E. Smith, Los Angeles, Skin Grafting with a Report of a New Procedure.
Dr. James H. Mitchell, Chicago, The Streptococcal Infections of Skin and Mucous Membrane.
Dr. Cecil S. O'Brien, Iowa City, Tumors of the Orbit.
Dr. Otto Jason Dixon, Kansas City, Mo., Diagnosis and Treatment of the Three Major Complications of Mastoid Disease.

There will be round table discussions, alumni and fraternity dinners, a smoker Tuesday evening and a banquet Wednesday evening.

Congress of Physical Therapy.—The eighteenth annual session of the American Congress of Physical Therapy will be held at the Hotel Pennsylvania, New York, September 5-8. The formal opening of the congress will take place Tuesday evening with addresses of welcome by Drs. Terry M. Townsend, New York, president of the Medical Society of the State of New York; Farel Jouard, New York, president, New York Physical Therapy Society, and Benjamin Ulanski, Philadelphia, president, Pennsylvania Physical Therapy Association. Dr. William H. Schmidt, Philadelphia, will make his official address as president at this time on "The Future Development of Physical Therapy." Other speakers will include Drs. Bayard T. Horton and Frank H. Krusen, Rochester, Minn., on "An Evaluation of Methods and Mechanical Devices for Producing Increased Blood Flow in the Extremities"; Horatio B. Williams, New York, "Radio Interference by Electric Apparatus," and Russell L. Cecil, New York, "Physical Therapy as Compared with Other Forms of Therapy in Arthritis." The section on eye, ear, nose and throat will hold sessions Wednesday and Thursday. The general scientific session Thursday will be devoted to a symposium on fever therapy with the following speakers:

Dr. Murray B. Ferderber, Pittsburgh, Recent Developments Resulting from Fever Therapy Research.
Drs. Walter M. Solomon and Robert M. Stecher, Cleveland, Artificial Fever in Chronic Atrophic Arthritis.
Dr. William K. Ishmael, Oklahoma City, Autochemotherapy Reinforced with Artificial Fever in Rheumatic Disease.
Dr. Herbert Worley Kendell, Dayton, Fever Therapy in Syphilis and Gonococcic Infections.
Drs. Arthur Elmer Belt and Alvin W. Folkenberg, Los Angeles, Treatment of Gonorrhea by Artificial Fever Alone and by Fever in Combination with Sulfanilamide.
Drs. Earl C. Elkins and Robert L. Bennett Jr., Rochester, Minn., A Laboratory Technic for the Production of Fever.

The general scientific session Friday will be a symposium on fractures with the following speakers:

Dr. Eldridge L. Eliason, Philadelphia, Fractures.
Dr. Henry Jordan, New York, After-Care of Fractures with Special Reference to Delayed Union and Sudeck's Atrophy.
Dr. John P. Stump, New York, Maintaining Reduction in Oblique Fractures of Long Bones.
Dr. Milford E. Knapp, Minneapolis, The Role of Physical Therapy in Fractures.
Dr. Philippe Bauwens, electrotherapist, St. Thomas's Hospital and Royal Westminster Ophthalmic Hospital, London, Present Status of Iontophoresis.
Dr. Harold A. Abramson, New York, Iontophoresis of Epinephrine in the Treatment of Severe Asthma.

An instruction seminar will be held August 30-September 2 including lectures, hospital clinics and conferences.

FOREIGN

Congress on Electroradiology.—The fourth Congress of French-Speaking Electroradiologists will be held in Paris October 11-14 under the presidency of Dr. Louis Delherm. This congress was postponed from October 1938. Those who wish to attend should send applications as soon as possible to M. le Dr. Dariaux, secretary-general, 9 bis, Boulevard Rochechouart, Paris 9.

Congress on Plastic Surgery.—The fourth international congress under the auspices of the European Society of Structive Surgery will be held in Paris October 5-7. Prof. Pierre Sebileau, Paris, is honorary president and Dr. Leon Dufourmentel is president. The subjects chosen for discussion are treatment of deformities resulting from scar retractions of the eyelid and treatment of deformities of the jaw. Other communications will be strictly limited to subjects in plastic and reconstructive surgery. For further information address the secretary of the congress, Maison de Chirurgie, 9 rue de Turin, Paris.

Prize Offered for Paper on Tuberculosis.—The International Union Against Tuberculosis offers the Leon Bernard Prize for 1940 of 2,500 French francs for the best paper submitted on "Conjugal Tuberculosis." The essays may be in English or French; they must be typewritten or printed and must not exceed 10,000 words. The award is available to governments and associations belonging to the union and papers should be forwarded by the member associations to the Secretariat of the International Union Against Tuberculosis, 66 Boulevard Saint-Michel, Paris, not later than May 1, 1940. Should the executive committee decide that no essay is of sufficient merit to receive the award, the prize will not be awarded in 1940 but will be offered again the next year.

CORRECTION

The Other Dr. Adams.—A news item under California in THE JOURNAL, August 5, page 516, announced that Dr. Burton W. Adams, Oakland, had been appointed superintendent of the San Diego County Hospital, San Diego. Dr. Burton W. Adams telegraphed that this should have been Dr. Burton A. Adams, San Leandro.

Foreign Letters

LONDON

(From Our Regular Correspondent)

July 29, 1939.

Annual Meeting of the British Medical Association

The 107th annual meeting of the British Medical Association was held at Aberdeen. The President, Dr. Thomas Fraser, took as a subject for his address "Forty Years of Practice." Much progress has been made in the matter of nutrition, which had been in the limelight since the war. There was now a greater variety of food, but practical knowledge of food values was still lacking in an important section of the population, which conduced to increasing use of canned and bottled foods, even when fresh food was available at more economical rates. But we consumed a larger quantity of dairy produce. If butter and cheese were counted as the equivalent of milk, our consumption of milk per head had risen from 73 gallons per head in the five year period 1925-1929 to 89 gallons in the 1925-1929 period—a figure higher than that in the United States and other European countries. The improvement in nutrition was reflected in the rates of infant mortality 55, maternal mortality 3.26, puerperal sepsis 0.98 and tuberculosis 56 of today, against 70, 4.11, 1.57 and 79 of 1927. The reports on the health and physique of the many thousands of young men recently called up for the militia were highly satisfactory.

The great service which the association had rendered to the nation was organizing of the profession as an effective force able to present its views to Parliament and the people. In doing so it had been instrumental in no small measure in directing the health policy of the country. Many committees submitted valuable reports on this, which after years of delay were taken up by the government and incorporated in legislation. Of these the medical inspection of school children had been of profound benefit because of the earlier recognition and treatment of ill health in children. But the government adopted it only after ten years of delay.

IMPROVEMENTS IN THE BRITISH MEDICAL JOURNAL

At the representative meeting Dr. R. G. Gordon, chairman of the Journal Committee, said that the new Key to Medical Literature had met with much appreciation. It contained more than twice the number of abstracts that its predecessor, the Epitome, did. An endeavor had been made to prepare for an emergency by interrupting the series of general practitioner articles by a special war series. With regard to the special journals published by the association, for the first time one had shown a credit. The *Journal of Neurology and Psychiatry* in new form had increased its subscription list. The *British Heart Journal* already had a subscription list of nearly 400. Arrangements had been made for a *Journal of Thoracic Medicine and Surgery*. One member was perturbed at the increasing cost of the *British Medical Journal*. He thought it bught to pay for itself, and one of the reasons why it did not was that it was much too large; the only people who could read it all were retired and semiretired practitioners! Dr. Gordon did not think it desirable to state how much of the members subscriptions went to the *Journal*. No such periodical could meet all its expenditure from its own revenue, and the American Medical Association allotted more than half its revenue to its journal, while the proportion for the *British Medical Journal* was less than one sixth.

EMERGENCY ORGANIZATION

Sir Kaye Le Fleming, chairman of the Central Emergency Committee, said that in the emergency of last September the profession had made a magnificent response and there was a register of 96 per cent. The Ministry of Health coordinated all requests from the fighting services for medical personnel and these were supplied through the Central Emergency Committee. In any emergency the first demand would be for the civil defense of the country, and the ministry had set up an organization in various parts to deal with possible eventualities. In every area there would be a local emergency committee to represent medical interests. No physician would be allocated to any special duty except through it. An agreement had been come to with the government on the civil hospital emergency service that the scale of remuneration would correspond to that of the army. The payment for part time services had also been agreed on.

RECOGNITION OF LAY PSYCHOTHERAPISTS REFUSED

The council was defeated on its recommendation for recognition of lay therapists, including the clergy, under certain conditions. These were that no one should undertake treatment except on the recommendation of a physician or after investigation of the case by one; also no physician should recommend a patient to lay psychotherapists without being himself a specialist in psychologic medicine or without assuring himself that the lay therapist was adequately trained. In the discussion one member said that the peculiar position of the clergy made them quite unfit to act as psychotherapists. In supporting the recommendation the chairman asked, Was it advisable that clergy, working in conjunction with and to some extent under the control of the medical profession, should have some training in psychotherapy, and was it desirable that the large body of lay psychotherapists already practicing should be allowed to work without any control by the medical profession? The recommendation was defeated by 102 votes to 75.

THE ADMINISTRATION OF ANESTHETICS BY MIDWIVES

A recommendation by the council was moved that a state certified midwife may administer nitrous oxide and air by an approved apparatus as an anesthetic in labor, provided (1) that she has received at an approved institution instruction in the essentials of obstetric analgesia and has shown that she is thoroughly efficient in the use of the apparatus, (2) that the patient has within one month of her confinement been examined by a registered medical practitioner who has handed to the midwife a certificate that she is in a fit state for the administration and (3) that one other person, being a certified midwife, registered nurse or senior medical student is present. It was pointed out that for some time midwives had been administering anesthetics and that this had been approved by the Royal College of Obstetricians. The motion was defeated by a large majority.

AN APPROVED LIST OF PROPRIETARY MEDICINES ABANDONED

The council announced a reluctant conclusion on financial grounds to abandon the establishment of an approved list of proprietary medicines. A draft scheme had been prepared by a conference with the Pharmaceutical Society. It was stated that $10,000 would be spent on an investigation and probably more later, having regard to the experience of the American Medical Association, which spent $55,000 a year. The joint conference had great difficulty in limiting the sphere of its investigations, because many millions of pounds was spent on secret remedies. While the conference admitted the working of the American scheme, it was said that no country was more ridden by proprietary articles than America. With the present commitments of the association they were unable to proceed but would be only too glad to take up the matter when circumstances allowed.

TREATMENT OF UNUNITED FRACTURES

In opening a discussion in the Section of Orthopedics and Fractures, Mr. Naughton Dunn said that, if a patient had delayed union or nonunion of a fracture and the Wassermann reaction was positive, antisyphilitic treatment was necessary.

In cases of compound fracture the nature of previous infection should be investigated, so that the patient may be immunized by serums or vaccines before any operative procedure. Even in mild cases it was wise to wait six months after healing of the wound before operating, and it was safer to excise all scar tissue and remove any foreign body which might be present. Every effort should be made to restore the tone of the muscles and other tissues by massage, physical therapy and exercise. Cases complicated by a lesion of one of the main nerves were common in war surgery but were seldom seen in peace. When there was loss of one or more inches of nerve, suture should have priority to operation on bone, because recovery of the nerve takes longer than bone union, and the nonunion may allow end to end suture of the nerve not possible after continuity of the bone is established.

Mr. Dunn condemned active surgical treatment with introduction of foreign material. It had been responsible for many cases of nonunion. The records of Guy's Hospital showed that plating of fractures had lost favor in the home of its birth, and its tragedies were frequently seen in orthopedic hospitals. The question whether union of the fracture would improve function should receive careful consideration. In some cases it had the opposite effect. During the war it was found that, in nonunion of the lower end of the ulna with ankylosis of the inferior radio-ulnar joint, union of the ulna was a disadvantage. While the ulna was ununited, pronation and supination took place at the false joint but were lost after union. It was this that probably led Baldwin of San Francisco to produce a false joint in the lower third of the ulna when destruction of the inferior radio-ulnar joint interfered with pronation and supination. In some cases removal of the fragments gave the best functional result. For example, in old cases of nonunion of the patella and olecranon removal of the bone and reestablishment of continuity of the extensor apparatus was the best method of relieving pain and improving function. In cases of pain associated with nonunion of the internal malleolus, removal of the fragment was preferable to union. A gap in the continuity of the long bones could be bridged successfully only by an autogenous graft, as by the method of Albee. But where there was nonunion without loss of bone, a graft was not necessary. The ends of the bones should be exposed and freshened not by the usual subperiosteal method but by removal of cortical bone with its periosteum and muscular attachments. This left freshened bone surfaces which could be approximated and islands of living bone which, when sutured in relation to the joint, increased the area of living bone contact.

PARIS

(From Our Regular Correspondent)

July 8, 1939.

Status of the Profession in the French Colonies

The vast extent of the French colonial empire, the second largest in the world, creates problems of great scope and, at the same time, of great variety because of the difference in races and climates, although French colonial possessions are generally situated in similar tropical regions. The principle of cooperation with the native populations is, in general, observed but has not always given good results. Four institutions, situated at Bordeaux, Lyons, Brest and Marseilles, offer special instruction to physicians who intend to prepare themselves for service in the colonies. In Paris the Institute of Colonial Medicine also confers special medical diplomas. The medical education required of all physicians is a prerequisite to the special diploma for colonial service. In the colonies, notably at Hanoi in Indo-China, at Dakar in Senegal and in Madagascar, schools of medicine have been organized to train native physicians. The practice of medicine in the French colonies is subject to the same laws as in the metropolis. The medical diploma conferred on natives who have passed the examinations in their local schools gives them the right to practice among the natives and to cooperate with organizations of preventive medicine and hygiene. There are five classes of physicians in the French colonies: native physicians, or, rather, native assistant physicians; physicians attached to colonial troops, who do not have the right to practice medicine among civilians in the metropolis but may do so in the colonies; other isolated military physicians sent by the government to regions without medical service; physicians in civilian life under contract with the colonial government, and finally physicians in private practice. From all of these five classes, but especially from army and navy physicians, the colonial governments choose the numerous personnel charged with the care of health and sanitation. One must add to this fivefold classification physicians drawn mostly from the army and navy who work in health centers such as the local Pasteur institutes and rarely have civilian clients. For the care of the needy, physicians are selected competitively. They give their whole time to their duties at times under primitive conditions, for they have charge of populations scattered over large areas deficient in means of communication and medical resources. Practicing physicians are naturally established in large cities, where they enjoy a fairly competent income. Many teachers of local medical schools also organize a private practice. Laws have improved the situation of French physicians practicing in the colonies by establishing the respective rights of civilian, army, navy and native doctors. But much needs to be done in matters pertaining to medical education. Notably the native physicians, in whom great hopes had been placed in the name of equality among men, have manifested little interest in acquiring the moral qualities without which medicine is not possible. Eager for profit, vain and revolutionary, they have revealed their complete inadequacy. The 740 colonial medical assistants, the 400 midwives and the thirty-six dentists trained by the School of Medicine at Tananarive, Madagascar, have failed to do what was expected of them; on the contrary, many of them have engaged in anti-French political activities. It will take a long time before these native physicians will acquire an honorable and sure position in the colonies. The situation is different in northern Africa. There are very good native physicians in Algeria. Morocco and Tunis because of their political status as protectorates are also open to physicians who are not Frenchmen. Many Russian émigrés, German Jews and other victims of the recent civil wars have established themselves there.

Masculinizing Properties of Human Urine

Binet and Luxembourg have reported to the Medical Society of the Hospitals of Paris ingenious experiments made on fish. Binet sought to find out whether fish could be utilized for detecting the hormone in male urine. For this purpose he employed the xiphophore, a pretty aquarium fish the male of which has a tail resembling a sword. Spontaneous sex mutations had previously been observed in these fish. Sex mutation had also previously been brought about by introducing testosterone propionate into the organ of female xiphophores. Females so treated were able to impregnate other females. The urine extract which Binet used was obtained by the Buthenault method. This consists in acidifying the urine by hydrochloric acid and then by preparing from it an extract by boiling chloroform, by dissolving in an ether and finally in oil. Intraperitoneal injections were made twice a week for six weeks on adult females. Toward the end of the fourth week bodily changes appeared followed by the characteristic male caudal fin. This proves that the male urine of human beings contains a substance capable of inducing the change from female into male. Xiphophore female fish treated with an extract prepared from female urine produced no alterations of somatic characteristics. The xiphophore may therefore be considered an excellent test for the study of the androgen in human urine.

Control of Prostitution in Lyons

The question whether prostitutes ought to be allowed their individual liberty or be deprived of it continues to attract much attention. Sociologists, in the name of universal principles, assert the rights of these women, but they do not seem to weigh the realities of the situation, for a syphilitic prostitute can infect hundreds of imprudent men. Ignoring the arguments that can be advanced against police surveillance, Lacassagne in the *Siècle médical* discusses the control system practiced in Lyons, the third largest city in France, with 600,000 inhabitants. Before 1905, police control was confined to house visitations or to women arrested on the streets charged with soliciting. No organizations existed for their medical care and education in the use of prophylactics. In 1905, changes were made. Every prostitute is now supplied with a health book in which are recorded the results of the inspections to which she must submit under penalty of arrest. It is in this situation that logic favors the opponents of control. They reason that in reality a citizen of a free country is imprisoned whose only crime is that she makes use of her body as she chooses, while the man who encourages her remains free, even though he has been the carrier of a virulent infection. The proponents of control reply that a syphilitic woman who can contaminate a great number of men is much more dangerous and culpable than a transient individual. Lacassagne cites experiences during the World War. Cases of venereal disease multiplied to such an extent in the French army that the military authorities had to institute a severe control of infected women. It is likely that the speculative Rights of Man and citizens' rights were violated. Doesn't the same situation prevail with regard to other serious diseases, such as leprosy and in public protection against narcotics? Lacassagne points out that prophylactic dispensaries, such as exist in Lyons, are also educational centers protecting both the infected prostitute and her patron by extending medical aid to her and showing him how to escape infection. According to the author, supervision of prostitutes is not only a legitimate exercise of police power but desirable for the prostitutes themselves. In Grenoble, a town in southern France where prostitution is not under surveillance, prostitutes are nevertheless arrested when plying their trade. The next day they are set free without regard to their infection. There can be no doubt that the Lyons plan is the better plan. He asserts that because of the measures in force in Lyons clandestine prostitution, which certainly is the most dangerous of all, is of infrequent occurrence. A well organized police control acts as a constant check. Like many other human institutions, regulation of prostitution is no better than the men charged with enforcing it: the physicians, the police and other officials.

BELGIUM

(From Our Regular Correspondent)

July 5, 1939.

Regulations to Protect the Health of Employees

General regulations affecting the health of employees have just been issued applicable to industrial establishments and public service establishments, including public utilities. It is prohibited to use damp or unhealthful premises as offices. Offices must be separated from workshops or store-rooms in such a manner that employees are protected as much as possible against noise, vibrations, heat and noxious odors. Precautions must be taken to avoid fire hazards. The premises must be easily accessible at all times so as to assure the safety of the workers in case of fire. Where necessary, provision must be made for the rapid rescue of the employees by means of fire escapes and special exits. It is prohibited to store inflammable or explosive materials in offices. Every office employee must have working space amounting to 10 cubic meters and a surface area of at least 4 square meters. The distance to the ceiling from the floor must not be less than 2.5 meters. The floor of the premises must constitute an even surface without cracks and must be constantly kept clean. Premises must be ventilated completely at least once a day outside working hours. Offices must be suitably lighted. During the day they must receive sufficient natural light, preferably by means of illuminating surfaces that allow the sunlight to enter directly. As far as possible, lighting surfaces should include windows in outside walls. Provision must also be made for the protection of employees against direct sunlight. In winter, the temperature must be maintained between about 18 and 22 C. (64 and 75 F.) and controllable by easily accessible apparatus. The humidity must conform to hygrometric standards. Heating apparatus must be supplied with equipment permitting regular elimination of gas caused by combustion. Chimney drafts may not be controlled by contrivances that may completely shut off gas elimination. Rooms set apart for the use of employees must be cleaned by processes that do not raise the dust. Thorough cleaning must be done at least once a week. Notices must be posted forbidding expectoration on the floor. Office employees must be provided with seats that have backs permitting them to rest their feet on the floor or flatwise on raised supports. There must be at least one toilet for twenty-five male persons and one for fifteen female persons. The toilets must be kept in a good, clean condition. Owners, managers and directors are required to place at the disposal of their employees the necessary means (1) of changing their street clothes under conditions of hygienic safety and suitable decency, (2) of washing their hands and face and (3) of taking their meals under satisfactory conditions of health and comfort. Owners, managers and directors of establishments are required to take the necessary measures, in case of accidents or grave illnesses, for arranging first aid, as well as transportation of the patient either to her home or to a place where she may receive prompt attention. Whenever the establishment has at least ten employees the means of first aid, always kept in perfect condition and for immediate use, should consist at the least of a medicine chest corresponding to the conditions set forth. Employees are forbidden to take their meals elsewhere than at the places designated, to lay down their clothes outside the places appropriated for such use and to bring alcoholic beverages into the offices, storerooms or buildings. Employees at work at open air counters connected with bazaars and stockrooms may not be employed at such work more than four hours a day in two hour shifts with an interval of at least one hour. Nor may they work after 7 p. m. or when the temperature is lower than 5 C. (41 F.). They must be protected against rain, wind and air currents and against direct sunlight by means of top covers. Heating arrangements must be made for them from October 15 to April 15 when the temperature is below 10 C. (50 F.) or else opportunities be given for periodic warmings.

The Control of Milk and Butter Production

An official licensing system for the control of the production and sale of milk has been set up in order to promote improvement in quality. To be licensed, the producers must establish to the satisfaction of the veterinary inspector that their stables, cows and methods of production correspond to the following general directions: Milk cows must be free from mastitis and their condition of health compatible with the production of a wholesome normal milk. Their maintenance with regard to cleanliness must be perfect. The stable ought to contain only cows to the exclusion of calves. The use of fodder and drinking water that might affect the quality of the milk unfavorably is prohibited. Milking must be done into irreproachably clean utensils by careful milkers. The milk must be filtered and rapidly cooled. Receptacles used for delivery must be of one piece, beaten out or welded. If they are plated, the plating

must be without defects. They must be handled in such a way as to avoid the risk of injury. Similar control provisions are applicable to the production and sale of butter.

The Queen Elizabeth Foundation in the Congo

The Queen Elizabeth Foundation aims to discover, by means of biennial examinations of the whole population of the Congo, the diseases likely to make themselves felt in the demographic statistics and to furnish treatment in the dispensaries to those in need of it. The foundation is also engaged in social work such as infant welfare, maternity and antepartum service and the sanitation of villages. For the medical work among the natives of the Belgian Congo the foundation has an important administrative personnel: one medical head, twenty-five assistant physicians, twenty-one European health officers and numerous native helpers. A quadrennial plan (1939-1942) has been established for the construction of buildings necessary to house personnel, services and the handling of the many indications for the rapid assignment of the personnel. A total of 300,000 vaccinations was performed in 1937. The decrease in the number of persons stricken with trypanosomiasis has been all the more rapid as the living conditions have become more favorable.

AUSTRALIA

(From Our Regular Correspondent)

July 4, 1939.

Expenditure on Alcohol

The consumption of alcoholic liquor in New South Wales last year was such as to cost a community of 2,718,000 people nearly £16,000,000. This total showed a sharp increase over the previous year. The drink bill last year exceeded by some £3,000,000 the total state outlay during 1937-1938 on education, social services and health.

Modify Stand on Social Security Act

Two radical departures from the previous attitude of the British Medical Association in New Zealand toward the maternity benefit scheme under the Social Security Act are revealed in a circular issued to all members. It is now suggested that fixed medical fees be provided for normal cases but that variation of payments be made when abnormalities are encountered and that fees payable from the security fund be paid direct to the doctor. The association has thereby abandoned its claim for a cash payment to the patient. The circular suggests that the government will be asked to amend the act to give effect to these proposals, which will mean that all doctors doing maternity work will be compelled to enter the scheme.

A Medical Paradox

A paradox of doctors presents itself in New South Wales. Professor Windeyer, dean of the Faculty of Medicine at Sydney University, declared that the number of medical students should be limited, since for some years to come the supply of doctors in Australia would be greater than the demand for their services. On the other hand, country hospitals and districts are unable to secure medical practitioners even though the state government provides a guaranteed income of £500 a year in addition to private fees. The government is considering the filling of the breach by "regional registration" of refugee doctors. The British Medical Association contends that a government subsidy of £1,000 should be provided for doctors in outback districts. Critics of this statement draw attention to the fact that not 50 per cent of the solicitors in the state are earning the despised £500 a year, while more than half of the barristers are making a lesser income. Even more pertinent are the deplorably low earnings of qualified engineers, although their profession may be regarded as highly skilled—and as socially valuable—as that of the doctors. It would appear in fact that the medical profession tends to demand—and expect—for all its practitioners standards of remuneration and of amenities which are not enjoyed by any but the more experienced and successful members of the other professions. The answer of the British Medical Association to this comment is that the guaranteed income of £500 is quite inadequate to enable a practitioner in sparsely populated areas to meet the professional expenses incurred in running his practice. Moreover the isolation and the absence of ready professional assistance, together with the greater responsibility thereby entailed, require an experienced practitioner whom the paucity of the subsidy must necessarily fail to attract.

ITALY

(From Our Regular Correspondent)

July 15, 1939.

Bassini's Operation for Hernia

Professor Catterina of Rome University recently lectured to physicians of the garrison at Rome on Bassini's radical operation for hernia. Catterina, who was a pupil of Bassini, said that the operation is of social importance. The frequency of hernia is more than 15 per cent in workers in some industries. Bassini performed the operation for the first time in 1884. He presented the first scientific report in 1886 and published his monograph in 1889. The monograph had some defects both in the text and in the illustrations from which the technic was erroneously interpreted and modifications were offered. Professor Catterina published a complete textbook on the operation with sixteen illustrations which were done by the painter Gaigher. The book was published in five different languages. The speaker reviewed the anatomic-physiologic principles of Bassini's operation. Bassini believed that the fascia transversalis is not the posterior aponeurosis of the transverse muscle. It is a membrane of varying thickness in different persons which originates at the small pelvis and goes over and behind the transverse muscle to the costal arches. Near the deep epigastric vessels it becomes thickened, enters the inguinal ring and, in the form of a sheath of common fascia, covers the inguinal cord and protects it during its passage through the inguinal canal. The region of Hesselbach's triangle is occupied by the caudal, fine aponeuroses of the transverse and small oblique muscles which identify themselves with the fascia transversalis and form the bottom of the triangle. Bassini's operation is based on the principle of providing the inguinal canal with a posterior wall which is made up of the fascia transversalis and the transverse and small oblique muscles. As a result of intra-abdominal pressure the muscles stretch in a special manner after the operation, because of the different course of their fibers, and prevent contact between the abdominal viscera and the inguinal cord and the compression of the former on the latter which was taking place before the operation was performed.

Petrification of Anatomic Specimens

Prof. Francesco Spirito, head of the obstetric and gynecologic clinic of Siena University, gave a lecture before the Accademia dei fisiocritici of Siena on a method of petrification of anatomic specimens. Positive results in petrifying anatomic specimens were previously obtained by Segato, Gorini and Marini but they never disclosed the method. Professor Spirito presented the specimens of the structures of the human body which were petrified by his method. He delivered the formula of his method of petrification to the Accademia dei Lincei, as he is attempting to improve the method before publishing a description of it. By means of Spirito's method it is possible first to petrify organs for studies on the external aspect of a given lesion (without resorting to artificial models, photographs or designs) and then to depetrify them for microscopic study. The procedure does not cause histologic

alterations of the organs. The cells retain the property of taking nuclear and protoplasmic stains for a long time. In the practical demonstration which followed the lecture the speaker showed the degree of petrification which the anatomic specimens acquire by his method. He presented a piece of marble united with petrified specimens of viscera. This part of the work is analogous to that which Segato carried on by doing a table with a mosaic which contains 214 anatomic specimens of human viscera which look like pieces of marble of various colors. Segato's table is preserved in a museum.

Care of Mothers

Laws have been provided recently for the care of working mothers. During the sixth month of pregnancy a medical certificate is given to the employer showing the approximate date of delivery. If the prospective mother wishes to remain at work up to three weeks before delivery, the employer will be given a medical certificate stating that the woman is in good health and can follow working without any possible danger for her health or that of the baby. When a woman asks to resume work at the end of three weeks after delivery (without waiting for the six weeks which is ordered by the law) the employer will ask her for a medical certificate showing that she is in good health. A woman may be absent from work in temporary illness during the course of pregnancy and the puerperium and also in case of either spontaneous or therapeutic abortion but in all cases she will give to the employer a medical certificate justifying her absence from work. Physicians will report abortion independently of having given the woman a certificate for her employer. When a woman leaves work for reasons related to pregnancy or the puerperium the employer will give her her social insurance card and a certificate with the date on which she started work and the date and cause of stopping work. Employers breaking the laws will be fined a given amount from 50 to 500 lire ($2.50 to $25) for each infraction.

Sanatorium for University Teachers and Students

The federal council of Switzerland recently invited the Italian government to cooperate in the foundation of an international sanatorium which will be built and organized in Leysin for teachers and students from universities. There is already at Leysin a sanatorium of the type, which has fifty beds and in which more than 700 persons from forty-two states, who are either teachers or students, have been cared for. The new international sanatorium will have 200 beds. The federal chamber of Switzerland made an allowance of 500,000 Swiss francs. The municipality of Leysin donated the grounds. The International League of the Red Cross and other organizations have made donations. Cash will be given in the form of donations for beds, each of which is evaluted at about 25,000 Swiss francs.

MADRID

July 25, 1939.

[Note.—In the July 8 issue of The Journal a letter from Madrid from our regular correspondent was published. He had not carried on his correspondence during the period of the civil war. A number of letters have been received protesting some of the statements made in this letter. The following letter was prepared in part by three former professors of Spanish universities who are now in exile.—Ed.]

Many of the statements in the Madrid letter from the regular correspondent of The Journal are inaccurate or give a false picture of the state of affairs during the late civil war in Spain. Although it is true that the office of "responsible" was created in Madrid at the beginning of the war, the medical profession of the Madrid hospitals was not under the direction of these officers. Even though rarely they may have exceeded their duties, they never took any important forcible actions on physicians. The statement that the "responsible" of the hospital of San Juan de Dios was "a laborer at the Oporto port and knew but little Spanish" is contrary to fact, and the dermatologist mentioned in the regular correspondent's letter had been provisionally appointed president of the College of Physicians during the first phase of the war. His efforts, like those of other physicians on the board of directors of the college, were directed toward minimizing dangers to which politically opposed physicians might be exposed because of their hostility to the prevailing Republican government.

The identifying bracelets or "brassards" distributed at the onset of the war were intended to facilitate free passage for doctors. Soon, however, counterfeit brassards, attached to nonmedical persons, began to circulate and it was considered necessary to register the arm bands and to furnish them with an official seal. This measure was adopted for all physicians regardless of political opinion. With regard to the expulsion of anti-Republican physicians from the Beneficencia Provincial in Madrid, this was ordered by the Board of Supervisors and not by the doctors, who, regardless of party affiliation, attempted to defend their colleagues against expulsion.

Dr. Gomez Ulla, referred to in the regular correspondent's letter, was a colonel in the army medical corps and was detained as he was deserting across one of the fronts. In spite of the customary punishment for this military offense, he was later exchanged for Dr. Jose Bago.

The Medical Syndicate of Madrid constantly gave instructions permitting any doctor to continue with his work during the war. Among the anti-Republicans treated in this way were Drs. Olivarez, Marañon, Gimenez Diaz, Rozabal, Vigueras, Albosanz, Arredondo, Alvaro Gracia and Lopez Duran y Villa. Dr. Gimenez Diaz, professor at the Central University, was even furnished with a well equipped hospital in the suburbs of Madrid. Some of these physicians later left Spain without interference.

A number of prominent scientists and physicians were executed by the Nationalists, among them Dr. Sadi de Buen, Dr. Pablo Montañes, Dr. Eugenio Arbones, one of the best known gynecologists of Vigo, Dr. Vega Barrera, director of the hospital of Lugo, Dr. Telmo Bernardez of Redondela, Drs. Amancio Caamaño and Alejo Diz Jurado of Pontevedra, Dr. Dario Alvarez Limeses of Tuy, Dr. Jorge Etcheverri of Cangas de Morrazo, Dr. Vincente Varela Radio of Santiago, Dr. Luis Poza Pastrana of Pontevedra, Dr. Waldo Gil of Vigo, Dr. Jaime Quintenilla, Dr. Perez Carballa of El Farrol and Dr. Baeza of Toledo.

As to the lack of food, the Madrid regular correspondent is quite accurate. In spite of the almost inconceivable shortage of food there was not a single epidemic—a fact which speaks well for the efficiency of the sanitary organization developed by the physicians.

Marriages

Leon Stuart Gordon, Washington, D. C., to Miss Beryl Dorothae Jaffe of Birmingham, Ala., June 4.

William Clegg Eversole, Vincent, Ala., to Miss Vivian Duncan Booker of Birmingham recently.

Le Roy M. Robins, Washington, D. C., to Miss Naomi Ellisberg of Raleigh, N. C., June 24.

William P. Gregg, Drexel Hill, Pa., to Sarah Elizabeth High of Horsham, June 17.

Theodore Burg Russell, New York, to Miss Mary L. Peltz at Selkirk, June 24.

William Arthur Johnson to Miss Ysobel Tyer, both of Uniontown, Pa., July 19.

Anthony H. Gallis to Miss Frances Skundale, both of Atlanta, Ga., June 11.

Abe R. Eveloff, Springfield, Ill., to Miss Vivian Grebler at St. Louis, July 13.

Deaths

Perry Bromberg ● Nashville, Tenn.; University of Tennessee Medical Department, Nashville, 1895; member of the House of Delegates of the American Medical Association, 1913-1915 and in 1917; secretary of the Tennessee State Medical Association, 1911-1914; past president of the Nashville Academy of Medicine and the Davidson County Medical Society; professor of clinical urology at the Vanderbilt University School of Medicine; formerly professor of urology at his alma mater; member of the Southeastern Surgical Congress and the American Urological Association; fellow of the American College of Surgeons; genito-urinary surgeon to the Vanderbilt University and St. Thomas hospitals; editor of the *Journal of the Tennessee State Medical Association*, 1911-1914; aged 64; died, July 4, of coronary thrombosis.

George Harold Ward, Blairstown, N. J.; Queen's University Faculty of Medicine, Kingston, Ont., Canada, 1903; member of the Medical Society of New Jersey; at various times on the staffs of the Englewood (N. J.) Hospital, Manhattan Eye, Ear, Nose and Throat Hospital, New York, Holy Name Hospital, Teaneck, N. J., Nyack (N. Y.) Hospital, Hackensack (N. J.) Hospital, "Bergen Pines," Ridgewood, and the North Hudson Hospital, Weehawken; aged 59; died, May 30, of coronary thrombosis.

George Melick Boyd ● Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1882; emeritus professor of obstetrics at the Medico-Chirurgical College, Graduate School of Medicine, University of Pennsylvania; fellow of the American College of Surgeons; served during the World War; consulting obstetrician to the Philadelphia General Hospital and the Preston Retreat; aged 77; died, May 20, in Ulster County, N. Y.

Walter Lowrie Campbell ● New Castle, Pa.; Jefferson Medical College of Philadelphia, 1903; past president and secretary of the Lawrence County Medical Society; served during the World War; at one time member of the city council and school board; aged 63; on the staff of the Jameson Memorial Hospital, where he died, May 29, of arteriosclerosis and hypertension.

Jacob Edgar Belville, Philadelphia; Jefferson Medical College of Philadelphia, 1882; Boston University School of Medicine, 1883; Hahnemann Medical College and Hospital of Philadelphia, 1901; professor emeritus of physiology at the Hahnemann Medical College and Hospital; aged 80; died, May 30, in the Hahnemann Hospital.

Fred Gordon La Rue, Lexington, Ky.; University of Louisville Medical Department, 1894; member of the American Psychiatric Association; formerly superintendent of the Eastern State Hospital, Lexington, and the Western State Hospital, Hopkinsville; aged 72; died, May 25, of hypostatic pneumonia and hypertensive heart disease.

Philip Allen Shinn, Rockland, Mass.; Tufts College Medical School, Boston, 1915; member of the Massachusetts Medical Society, American Psychiatric Association and the New England Society of Psychiatry; served during the World War; formerly connected with the U. S. Public Health Service, reserve; aged 53; died, May 23.

Ellis Edgar Willits Given, Ambler, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1897; served during the World War; fellow of the American College of Surgeons; aged 66; died, May 11, in the Pennsylvania Hospital, Philadelphia, of chronic adhesive pericarditis.

James Allen Fetherolf, Stockertown, Pa.; Jefferson Medical College of Philadelphia, 1880; Hahnemann Medical College and Hospital of Philadelphia, 1883; member of the Medical Society of the State of Pennsylvania; formerly county coroner; aged 81; died, May 3, in the Easton (Pa.) Hospital.

Joseph Leo Conarton, Mayfield, Pa.; College of Physicians and Surgeons, Baltimore, 1915; member of the Medical Society of the State of Pennsylvania; for many years school physician for the school district of Mayfield; on the staff of St. Joseph's Hospital, Carbondale; aged 55; died, May 21.

Samuel W. Price, Scarbro, W. Va.; University College of Medicine, Richmond, 1896; member of the West Virginia State Medical Association; past president of the Fayette County Medical Society; member of the Public Health Council; aged 68; died, May 31, of coronary thrombosis.

James Talmage Wyckoff, Leonia, N. J.; Long Island College Hospital, Brooklyn, 1893; veteran of the Spanish-American and World wars; aged 67; on the staff of the Englewood (N. J.) Hospital, where he died, May 6, of coronary thrombosis and carcinoma of the prostate.

Charles R. Haman, Reading, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1891; member of the Medical Society of the State of Pennsylvania; on the staff of the Homeopathic Medical and Surgical Hospital; aged 71; died suddenly, May 29, of heart disease.

Walter Chafey Moodie ● Valhalla, N. Y.; University of Nebraska College of Medicine, Omaha, 1912; served during the World War; aged 56; on the staff of the White Plains (N. Y.) Hospital and St. Agnes Hospital, White Plains, where he died, May 7, of coronary thrombosis.

Thomas Arthur Flood, Los Angeles; Georgetown University School of Medicine, Washington, D. C., 1897; member of the Utah State Medical Association; formerly on the staff of the Holy Cross Hospital, Salt Lake City; served during the World War; aged 69; died, May 9.

Harry Alexander Simrell ● Stockton, Mo.; Bennett Medical College, Chicago, 1913; past president of the Vernon-Cedar Counties Medical Society; member of the state legislature; aged 52; died, May 22, in the Springfield (Mo.) Baptist Hospital of meningo-encephalitis.

Joseph Carl Kamp ● Casper, Wyo.; Denver and Gross College of Medicine, 1909; fellow of the American College of Physicians; formerly on the staff of the Memorial Hospital of Natrona County; aged 59; died, May 13, in the Scripps Memorial Hospital, San Diego.

Alpha Haven Harriman, Laconia, N. H.; Medical School of Maine, Portland, 1883; member and past president of the New Hampshire Medical Society; fellow of the American College of Surgeons; past president of the board of education; aged 81; died, May 29.

Charles Henry Brown ● Franklin, Pa.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1905; for many years health officer and member of the school board; on the staff of the Franklin Hospital; aged 62; died, May 12, of pneumonia.

Paul Kibbe Sellew ● Los Angeles; Yale University School of Medicine, New Haven, Conn., 1911; formerly professor of hygiene and pathology at the University of Southern California School of Medicine; served during the World War; aged 51; died, May 5.

William Tell Phillipy, Carlisle, Pa.; Jefferson Medical College of Philadelphia, 1884; member of the Medical Society of the State of Pennsylvania; served during the World War; aged 76; on the staff of the Carlisle (Pa.) Hospital, where he died, May 9.

Charles Edward Holton, Washington, D. C.; University of Vermont College of Medicine, Burlington, 1892; for many years an investigator in the food and drug control division of the United States Department of Agriculture; aged 70; died, May 22.

Frederick Howard Dart, Niantic, Conn.; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1884; member of the Connecticut State Medical Society; aged 79; died, May 13, of chronic myocarditis and nephritis.

Francis C. Ferry, Los Angeles; University of Southern California School of Medicine, Los Angeles, 1903; member of the California Medical Association; served during the World War; aged 59; died, May 18, in the Veterans Administration Facility.

Milton Underwood McIntyre, Du Bois, Pa.; Baltimore Medical College, 1907; member of the Medical Society of the State of Pennsylvania; on the staffs of the Du Bois and Maple Avenue hospitals; aged 56; died, May 25, of coronary thrombosis.

Bertram Francis Alden ● San Francisco; Cooper Medical College, San Francisco, 1894; fellow of the American College of Surgeons; served during the World War; visiting surgeon to St. Francis and French hospitals; aged 66; died, May 14.

Russell Harrison Person, Athens, Pa.; Jefferson Medical College of Philadelphia, 1914; member of the Medical Society of the State of Pennsylvania; county coroner; on the staff of the Robert Packer Hospital, Sayre; aged 49; died, May 8.

David Edward Hoff ● Harrisburg, Pa.; University of Maryland School of Medicine, Baltimore, 1902; aged 64; on the staff of the Harrisburg Polyclinic Hospital, where he died, May 31, of left ventricular failure and cerebral embolism.

Levi Gilbert Ross, St. Helens, Ore.; Northwestern University Medical School, Chicago, 1907; member of the Oregon State Medical Society; county health officer; owner of St. Helens General Hospital; aged 59; died, May 30.

Henry H. Brundage, Bethesda, Md.; Fort Wayne (Ind.) College of Medicine, 1892; at one time mayor of Bloomville, Ohio; aged 79; died, May 5, in the Georgetown Hospital, Washington, D. C., of carcinoma of the stomach.

John Forney Rowan, Jacksonville, Ala.; University of Virginia Department of Medicine, Charlottesville, 1879; University of the City of New York Medical Department, 1880; formerly probate judge; aged 81; died, May 12.

Bertha Virginia Thomson, Oshkosh, Wis.; Northwestern University Woman's Medical School, Chicago, 1895; formerly city physician and health commissioner; aged 76; died, May 15, in the Mercy Hospital, of bronchopneumonia.

Joseph Thomas Ware, Starkville, Miss.; University of Nashville (Tenn.) Medical Department, 1890; formerly a member of the U. S. Public Health Service; aged 70; died, May 4, in the Mississippi Baptist Hospital, Jackson.

Harry Hiram Hewitt, Seattle; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1902; member of the Washington State Medical Association; served during the World War; aged 59; died, May 13.

Fred Rutan Underwood ● Seattle; Georgetown University School of Medicine, Washington, D. C., 1897; veteran of the Spanish-American War; aged 68; on the staff of the Providence Hospital, where he died, May 28.

Alvin Leonidas Jobe, Little Rock, Ark.; University of Arkansas School of Medicine, Little Rock, 1914; member of the Arkansas Medical Society; served during the World War; aged 58; died, May 26, of myocarditis.

Wilfred Aloysius McKeough, Haydenville, Mass.; Tufts College Medical School, Boston, 1924; member of the Massachusetts Medical Society; on the staff of the Hampshire County Sanatorium; aged 47; died, May 26.

Bert Dutton George, Rochester, N. H.; University of Vermont College of Medicine, Burlington, 1896; member of the New Hampshire Medical Society; served during the World War; aged 66; died, May 21.

V. Leo Simones ● La Crosse, Wis.; St. Louis University School of Medicine, 1915; served during the World War; aged 47; died, May 7, in the St. Francis Hospital of chronic myocarditis and pulmonary edema.

Joseph Robinson Jones, Charleston, W. Va.; Howard University College of Medicine, Washington, D. C., 1923; served during the World War; aged 44; died, May 26, of acute dilatation of the heart.

Bern S. Schoenkerman, West Allis, Wis.; St. Louis College of Physicians and Surgeons, 1923; aged 54; died, May 18, at the Mount Sinai Hospital, Milwaukee, of injuries received in an automobile accident.

Roy De Lisle Wilson ● Houston, Texas; Tulane University of Louisiana School of Medicine, New Orleans, 1908; served during the World War; aged 53; died, May 13, of a self-inflicted bullet wound.

William Stubenbord, New York; University of the City of New York Medical Department, 1879; member of the Medical Society of the State of New York; aged 86; died, May 23, of mesenteric thrombosis.

Albert Rubly Trapp ● Lincoln, Ill.; Rush Medical College, Chicago, 1901; served during the World War; aged 62; died, May 8, in St. John's Hospital, Springfield, of infection of the prostate and bladder.

William Robert Stephens, Toledo, Ohio; Friedrich-Wilhelms-Universität Medizinische Fakultät, Berlin, Prussia, 1903; aged 62; died, May 28, in St. Vincent's Hospital of pneumonia and cerebral hemorrhage.

Joseph H. Gandy, Lipan, Texas (licensed in Texas, under the Act of 1907); member of the State Medical Association of Texas; on the staff of the Nazareth Hospital, Mineral Wells; aged 59; died, May 18.

James W. Ritter, Jersey Shore, Pa.; American Eclectic Medical College, Cincinnati, 1884; member of the Medical Society of the State of Pennsylvania; formerly bank president; aged 80; died, May 10.

Andrew John Bowman, Boise, Idaho; Jefferson Medical College of Philadelphia, 1916; on the staff of the Veterans Administration Facility; aged 61; died, May 1, in Hollywood, Calif., of heart disease.

Charles Allen Poage ● Colusa, Calif.; Cooper Medical College, San Francisco, 1901; past president of the Yolo-Colusa-Glenn Counties Medical Society; city and county physician; aged 65; died, May 2.

Albert Martin Reid, Vina, Ala.; University of Nashville (Tenn.) Medical Department, 1907; member of the Medical Association of the State of Alabama; aged 60; died, May 29, of diabetes mellitus.

Stuart John Thorson, Minneapolis; University of Minnesota Medical School, Minneapolis, 1924; aged 42; died, May 16, at the Northwestern Hospital of sarcoma of the left humerus and hemiplegia.

Benton Pulsifer Crocker, Foxboro, Mass.; Bellevue Hospital Medical College, New York, 1891; member of the Massachusetts Medical Society; aged 72; died, May 26, of coronary occlusion.

Sigmund Siegfried Lewandowski, Camden, N. J.; Hahnemann Medical College and Hospital of Philadelphia, 1927; aged 39; died, May 19, in the Hahnemann Hospital, Philadelphia.

Gifford Dean Wray Jr., Chicago; School of Medicine of the Division of Biological Sciences of the University of Chicago, 1939; aged 24; was found dead, May 2, of poison, self administered.

James W. McGrath, Hartland, Wis.; Milwaukee Medical College, 1910; aged 64; died, May 13, in St. Joseph's Hospital, Milwaukee, of lobar pneumonia and hypertrophy of the prostate.

W. B. Stewart, Georgetown, W. Va.; College of Physicians and Surgeons, Baltimore, 1905; aged 76; died, May 29, in the Fairmont (W. Va.) Hospital of intestinal obstruction.

Alvarez H. Smith, Brooklyn; University of the City of New York Medical Department, 1890; aged 73; died, May 22, in the Adelphi Hospital of gangrene and arteriosclerosis.

Joseph Kins Rowland, Flat Top, W. Va.; Medical College of Virginia, Richmond, 1926; aged 40; died, May 19, in the Raleigh General Hospital, Beckley, of acute encephalitis.

Eugene Arthur Redlinger, Dallas, Texas; Friedrich-Wilhelms-Universität Medizinische Fakultät, Berlin, Prussia, 1895; aged 67; died suddenly, May 18, of coronary occlusion.

George F. Baier, Norwood Station, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1888; aged 79; died, May 7, of myocarditis and hypostatic pneumonia.

Charles Gaston Wilson, Clarksville, Tenn.; University of Michigan Homeopathic Medical School, Ann Arbor, 1882; aged 79; died, May 2, of influenza and pneumonia.

Albert Curtis Bond, Catlettsburg, Ky.; University of Louisville (Ky.) Medical Department, 1911; aged 54; died, May 7, in a hospital at Huntington, W. Va.

Thomas Stone ● New York; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1883; aged 84; died, May 19.

Charles B. Weedman, Wellington, Ohio; Western Reserve University Medical Department, Cleveland, 1880; aged 81; died, May 10, of coronary thrombosis.

John F. Rousseau, Beckville, Texas; Fort Worth School of Medicine, Medical Department of Texas Christian University, 1910; aged 66; died, May 17.

John Duncan Smith, Laurel, Miss.; Medical College of Alabama, Mobile, 1904; served during the World War; aged 66; died in May of heart disease.

William M. Boyd, Madison, Tenn. (licensed in Tennessee in 1889); aged 79; died, May 18, of fracture of the ribs resulting from a fall, and pneumonia.

William Ambrose Dower ● Windsor, Conn.; Tufts College Medical School, Boston, 1933; aged 34; died, May 13, in St. Francis Hospital, Hartford.

Thomas Owings Staples, Wylie, Texas; University of Louisville (Ky.) Medical Department, 1880; aged 78; died, May 18, of cardiac asthma.

Edward Everett Briry, Bath, Maine; Boston University School of Medicine, 1884; aged 80; died, May 28, of bronchopneumonia and influenza.

Ira E. Hall, Morgantown, W. Va.; Western Pennsylvania Medical College, Pittsburgh, 1892; aged 80; died, May 25, of uremia and myocarditis.

Lawrence Leonard, Londonderry, Vt.; University of Vermont College of Medicine, Burlington, 1918; aged 48; died, May 26, of myocarditis.

Charles Riley Laraway, Los Angeles; Northwestern University Medical School, Chicago, 1912; aged 62; died, May 31, of coronary thrombosis.

Ulysses S. Wasson ● Moorhead, Miss.; Memphis (Tenn.) Hospital Medical College, 1902; aged 58; died, May 11, of coronary thrombosis.

Bureau of Investigation

MISBRANDED "PATENT MEDICINES"

Abstracts of Notices of Judgment Issued by the Food and Drug Administration of the United States Department of Agriculture

[EDITORIAL NOTE.—The abstracts that follow are given in the briefest possible form: (1) the name of the product; (2) the name of the manufacturer, shipper or consigner; (3) the composition; (4) the type of nostrum; (5) the reason for the charge of misbranding, and (6) the date of issuance of the Notice of Judgment—which is considerably later than the date of the seizure of the product and somewhat later than the conclusion of the case by the Food and Drug Administration.]

Apostal Herb Tea.—Royal Mfg. Co., Duquesne, Pa. Composition: Essentially plant material including coriander seed, senna and bearberry leaves, and barks of licorice and cascara sagrada. Fraudulently represented as a remedy for dyspepsia, rheumatism, sick headaches and certain stomach, liver, kidney and blood disorders.—[*N. J. 29049; December 1938.*]

Balsam for Lungs.—Royal Mfg. Co., Duquesne, Pa. Composition: Essentially a syrupy liquid containing alcohol (about 5 per cent), water, chloroform, menthol, pine tar and extract of wild cherry bark. Fraudulently represented as effective in the treatment of simple ailments of the throat, chest and lungs, as well as whooping cough, asthma, croup, etc.—[*N. J. 29049; December 1938.*]

Bella.—Scheidemann Co., Milwaukee. Composition: Essentially a coarsely ground plant material consisting mainly of juniper wood, bark, needles and berries, and small amounts of bearberry and senna leaves. Fraudulently represented as a remedy for diabetes.—[*N. J. 29050; December 1938.*]

Bick's Menthoiated Camphor Cream.—Bick Co., St. Louis. Composition: Small amounts of menthol and camphor, in a petrolatum base. Fraudulently represented as a remedy for catarrh, headache, sore throat, etc.—[*N. J. 29041; December 1938.*]

Bixlax Laxative Tonic Tablets.—Carnation Co., St. Louis. Composition: Extracts of plant drugs including a laxative and an alkaloid-bearing drug, such as belladonna, coated with sugar, iron oxide and chalk. Fraudulently represented as a "tonic" for stomach, liver, kidneys and bowels, and effective in blood and skin diseases, rheumatism, sick headache, etc.—[*N. J. 29041; December 1938.*]

Blue Ribbon Household Liniment.—National Blue Ribbon Remedy Co., St. Louis. Composition: Essentially turpentine, mineral oil and volatile oils including sassafras, and red pepper. For cramps, sciatica, pleurisy, corns, bunions, etc.—[*N. J. 29041; December 1938.*]

Elso Asthma Remedy.—Erie Laboratories, Cleveland. Composition: Chiefly sugar, water, potassium iodide and ephedrine sulfate. Fraudulently represented as an effective relief for hay fever, coughs, and certain forms of sinus trouble.—[*N. J. 28368; September 1938.*]

Elso Hepatic Tablets.—Erie Laboratories, Cleveland. Composition: Chiefly phenolphthalein, bile salts, emodin-bearing drugs and red pepper. For intestinal putrefaction, jaundice, gallstones, etc. Fraudulent therapeutic claims.—[*N. J. 28368; September 1938.*]

Erickson's Eczema Salve.—Dr. E. S. Erickson, Spring Grove, Minn. Composition: Essentially lead acetate and a camphoraceous oil incorporated in an ointment base. Fraudulent therapeutic claims.—[*N. J. 28373; September 1938.*]

Green Mountain Stick Salve.—Mrs. A. H. Westfall, Roulette, Pa. Composition: Essentially rosin, wax and a small amount of copper chloride. Fraudulently represented as a remedy for pleurisy, rheumatism, lumbago, boils, blood poison, etc.—[*N. J. 28979; November 1938.*]

Kalo's Headache Powders.—Mentho Jell Co., Inc., Albert Lea, Minn. Composition: Chiefly acetanilid, caffeine, tartaric acid and sugar. Fraudulent therapeutic claims.—[*N. J. 28686; November 1938.*]

Kalo's Mentho Jell.—Mentho Jell Co., Inc., Albert Lea, Minn. Composition: Essentially a small amount of volatile oils including menthol and eucalyptol, in a petrolatum base. Fraudulently represented as a remedy for catarrh, hay fever, sore throat, etc.—[*N. J. 28697; November 1938.*]

Kampfmueller's Rheumatic Treatment.—Kampfmueller Rheumatic Remedy Co., Louisville, Ky. Composition: Chiefly water, ammonium iodine, sodium salicylate, plant extractives and a small amount of alcohol. Fraudulent therapeutic claims.—[*N. J. 28680; November 1938.*]

Kobreo Tablets.—Royal Mfg. Co., Duquesne, Pa. Composition: Essentially aspirin (5 grains per tablet). Fraudulently represented as a remedy for rheumatism, la grippe, backache, dizziness, etc.—[*N. J. 29049; December 1938.*]

Kolorok.—Kolorok, Inc., Spokane. Composition: Essentially calcium sulfate with a small amount of calcium carbonate. Fraudulently represented as a remedy for "all conditions due to lack of lime in the system"—indigestion, acidosis, gastric ulcers, kidney and bladder troubles, rheumatism, skin ailments, etc.—[*N. J. 28374; September 1938.*]

Kotofom.—Kotofom Corporation of America, South Bend, Ind. Composition: Chiefly water, soap and a small amount of glycerin, with minute quantities of fluorescein and a perfume. Fraudulently represented as a cure for severe cases of dandruff.—[*N. J. 28690; November 1938.*]

Kroup Mosia Salve.—W. D. Taylor & Co., Bessemer, Ala. Composition: Essentially petrolatum, with small amounts of eucalyptol, menthol, thymol, camphor and oil of turpentine. Fraudulently represented as a remedy for croup and pneumonia, bronchial troubles, catarrh, "piles," burns and inflamed surfaces.—[*N. J. 28369; September 1938.*]

Lacto-Cal.—Lacto-Cal Laboratories, Los Angeles. Essentially water, lactic acid, calcium lactate, a small amount of volatile acid, coloring, and small proportions of compounds of sodium, magnesium, chlorine and sulfur. Misbranded because it did not contain enough calcium to justify the name; misbranded, further, because fraudulently represented as a cure for rheumatic conditions, intestinal disorders, heart trouble, and many other things.—[*N. J. 28699; November 1938.*]

Lemke's (Dr.) Anti-Bilious Blood and Catarrh Powder.—Dr. H. C. Lemke Medicine Co., Chicago. Composition: Essentially ground plant material (including an emodin-bearing drug and an unidentified alkaloid), free sulfur, sugar, and iron and calcium compounds. Fraudulently represented as an effective treatment for catarrh, blood, stomach, liver, kidney and bowel ailments, asthma, etc.—[*N. J. 29042; December 1938.*]

Lemke's (Dr.) Golden Electric Liniment.—Dr. H. C. Lemke Medicine Co., Chicago. Composition: Essentially small amounts of ammonia, volatile oils including camphor, cloves and sassafras, with chloroform, ether, alcohol (64.2 per cent by volume) and water. Fraudulent therapeutic claims.—[*N. J. 29042; December 1938.*]

Linimentico.—Carnation Co., St. Louis. Composition: Essentially small amounts of camphor, oil of sassafras, wintergreen, menthol and oleoresin of red pepper, in a petrolatum base. Fraudulently represented as a remedy for rheumatism, lameness, neuralgia, etc.—[*N. J. 29041; December 1938.*]

Menthoiated LaPuris Korobiets.—Sterilek Co., Inc., Brooklyn. Composition: Tissue paper impregnated with menthol. For hay fever, rose fever, sinus troubles, etc. Fraudulent therapeutic claims.—[*N. J. 28701; November 1938.*]

Merz-Allium.—Merz & Co. Chemical Works, Inc., Newark, N. J. Composition: Essentially extracts of plant drugs including garlic and an alkaloid-bearing drug plant containing hydrastine, with alcohol, sugar and water, flavored with oil of clove. Fraudulently represented as a cure for intestinal catarrh, diarrhea, rheumatism, colics, etc.—[*N. J. 29681; November 1938.*]

Nux and Iron Tablets.—Keystone Laboratories, Memphis. Composition: Extracts of plant drugs including nux vomica, and compounds of iron, zinc and phosphorus, coated with chalk and sugar. Fraudulently represented as a remedy for "lost manhood," lack of iron in the blood, acute dyspepsia, nervousness, etc.—[*N. J. 28743; November 1938.*]

Omar Palmer's Famous Prescriptions.—Oto Remedies, Inc., Hurley, Mo. Composition: "No. 38" (a "tonic"), an arsenic compound, extracts of plant drugs including a laxative, with salicylic acid (0.1 per cent), alcohol (4.8 per cent) and water; "No. 47" (for kidney and bladder disorders), potassium acetate and a small amount of extracts of plant drugs including buchu and a saponin-bearing drug, alcohol (8.7 per cent), and water; "No. 53" (for sour stomach, heartburn, etc.), extracts of plant drugs including an alkaloidal drug and a small amount of volatile acid, such as acetic acid, alcohol (6.7 per cent), and water; "No. 61" (for various forms of rheumatism), sodium salicylate (5 per cent), extracts of plant drugs, alcohol (8.5 per cent) and water, colored with caramel and sweetened with saccharin; "No. 76" (for bronchial troubles), small amounts of guaiacol, menthol and extracts of plant drugs, alcohol (6.2 per cent), sugar and water; "No. 94" (for asthma), an arsenic compound, extracts of plant drugs including lobelia, alcohol and water; "Prescription Pile Ointment," sulfur (about 9 per cent), and iron sulfate (2.6 per cent), in a petrolatum base. Fraudulent therapeutic claims.—[*N. J. 28700; November 1938.*]

Perene Ointment.—Keystone Laboratories, Memphis. Composition: Essentially perfumed petrolatum, with a small amount of red mercuric oxide. Fraudulently represented as a remedy for eczema and other skin eruptions.—[*N. J. 28743; November 1938.*]

Red Oil Liniment.—W. D. Taylor & Co., Bessemer, Ala. Composition: Essentially kerosene, red pepper and volatile oils including those of turpentine and sassafras. Fraudulent therapeutic claims.—[*N. J. 28369; September 1938.*]

R. L. D. Prosco Tablets.—Erie Laboratories, Cleveland. Composition: Chiefly baking soda, hexamethylenetetramine and a very small amount of alkaloid. For bladder irritation, sleeplessness, nervousness, etc. Fraudulent therapeutic claims.—[*N. J. 28368; September 1938.*]

Salacetin Boil.—Hollings-Smith Co., Orangeburg, N. Y. Composition: Essentially acetanilid (2.7 grains per tablet), salicylates, baking soda and starch. Fraudulently represented as a remedy for febrile and uric acid conditions, rheumatism, neuralgia, fermentation, etc.—[*N. J. 28691; November 1938.*]

Sana-Sal.—Sana-Sal Distributing Co., New York. Composition: Essentially magnesium, calcium, sodium and potassium chlorides and bromides. Fraudulently represented as a bath for the treatment of rheumatism, arthritis, insomnia, poliomyelitis, skin and joint diseases.—[*N. J. 28372; September 1938.*]

Septomag Antiseptic Tablets.—Crescent-Kelvan Co., Philadelphia. Composition: Largely zinc sulfate, potassium permanganate, sodium borate, and volatile oils including wintergreen, thymol, eucalyptol and

menthol. Not antiseptic when used as directed; fraudulently represented as an antiseptic and effective vaginal douche in leukorrhea, gonorrhea, etc. —[*N. J. 28742; November 1938.*]

Venus Tea.—Maison Laboratories, Cleveland, and Venus Tea Co., New York. Composition: Essentially senna leaves with small amounts of bladderwrack, camomile flowers, calendula flowers, mint leaves, and couch grass. Misbranded because represented to be derived from roots or barks, which it was not, and to be a harmless and beneficial reducer, which it was not. Fraudulent therapeutic claims.—[*N. J. 28365; September 1938.*]

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

INFANTILE "COLIC" AND PHENOBARBITAL

To the Editor:—An infant has so-called colic—frequently called hypertonicity of the intestinal tract. The infant's abdomen is almost always moderately distended; percussion elicits the presence of gas in the intestine; otherwise the physical examination is negative. The infant has been gaining well and increasing in length; the bowel habit is irregular but satisfactory. The infant has been kept on a carnation milk, water and karo formula, with 1 drachm (4 cc.) of elixir of phenobarbital before each feeding, which means seven times a day. The phenobarbital is efficacious in producing sleep in the infant (6 weeks of age) rather than permitting it to cry continually. However, this means a daily ingestion of approximately 1½ grains (0.12 Gm.) of phenobarbital. Will any deleterious effects result from this dosage for a period of from three to six weeks or is there any danger of barbiturate poisoning? Please advise as to the possibility of a vitamin B deficiency being an etiologic factor in such cases. I ascribe this condition to a general constitutional inadequacy, particularly of the intestinal tract, which will adjust itself as the infant grows older. If no dangers or deleterious effects can result from such dosage of phenobarbital in an infant 6 weeks old it is certainly justifiable to make an infant "dopy" and sleepy rather than allow it to cry continually.

M.D., Iowa.

ANSWER.—In order to give a reasonable answer to the question of whether this 6 weeks old infant should be given 1½ grains of elixir of phenobarbital daily to keep him from crying, it would be well to review the causes of colic and attempt to make a rational diagnosis. Colic and distention of the abdomen in a baby may be caused by dietary indiscretions such as overfeeding, too frequent feeding or excessive carbohydrates in the diet. Congenital abnormalities of the intestinal tract such as congenital hypertrophic pyloric stenosis, congenital duodenal bands, obstruction along the small intestine and malformation of the colon, not to overlook stenosis and fissures of the rectum and anus, may cause the symptoms noted. Constipation due to an improperly balanced diet, paralysis of the abdominal muscles, spinal cord lesion and milk idiosyncrasies are other conditions which could produce these symptoms.

As an aid to diagnosis, a careful history with special reference to the diet should be taken, a complete examination of the stools should be done and, finally, an x-ray examination of the intestinal tract might be undertaken. The rational handling of such a case would then depend on the diagnosis arrived at and would be a much saner procedure than putting the baby to sleep with phenobarbital. The total twenty-four hour dosage of phenobarbital, 1½ grains, is excessive for an infant of this age. While infants have a good tolerance to phenobarbital, nevertheless if this dosage should be kept up for some time poisoning might result. Furthermore, though actual poisoning might not occur, one should not forget that the barbitals have side actions. They may cause gastrointestinal flaccidity and reduced peristalsis, decreased intestinal absorption of dextrose, decreased consumption of sugar by skeletal muscles, decreased secretion of urine, alarming restlessness, paresis of the tongue, cyanosis and asphyxia, skin rashes, depression of the spinal cord and reflexes, blood destruction and anemia (The Side Actions of Barbitals, editorial, THE JOURNAL, Aug. 14, 1937, p. 508).

If the mother had suffered from any considerable degree of vitamin B deficiency in her pregnancy, both mother and infant would probably show some of the active signs of beriberi. What effect a suboptimal vitamin B intake in the mother's diet during pregnancy would have on the infant is problematic. Without an attempt at a correct diagnosis one could hardly agree that "it is certainly justifiable to make an infant 'dopy' and sleepy rather than allow it to cry continually."

POSSIBLE DERMATITIS FROM TETRACHLOROETHYLENE

To the Editor:—Recently I have encountered three cases of an erythematous cutaneous rash following the wearing of garments cleaned with tetrachloroethylene (perchloroethylene). Is this condition a clinical entity or is it one of individual sensitivity?

George W. McCormick, M.D., Staten Island, N. Y.

ANSWER.—As tetrachloroethylene (sometimes termed perchlorethylene), like trichloroethylene, is a skin defatting agent, dermatitis might be expected from it; few, if any, cases are reported in the literature, while cases caused by trichloroethylene have been reported.

Both tetrachloroethylene and trichloroethylene are described in the National Formulary and in New and Nonofficial Remedies, 1939. Tetrachloroethylene is used in medicine chiefly as an anthelmintic for the treatment of hookworm infestation. It is generally considered to be less toxic internally than carbon tetrachloride. Trichloroethylene is used chiefly as an anesthetic, particularly in the treatment of tic doulloureux. Tetrachloroethylene has been used considerably of late years in the cleaning of fabrics. In order to determine whether or not tetrachloroethylene is irritating, the following procedure is indicated:

1. Make patch tests with a piece of the offending garment in order to make sure that it caused the dermatitis.

2. Make patch tests with a piece of gauze dipped in the actual cleaning solution obtained from the cleaner, first allowing the wet gauze to stand a sufficient length of time for all the cleaning fluid to evaporate.

3. Make patch tests with a piece of gauze dipped in pure unused tetrachloroethylene, first allowing it to evaporate to dryness.

A positive reaction to patch 2 will show that the cleaning solution contains a nonvolatile irritant; a negative reaction to patch 2 and a positive reaction to patch 1 shows that the fabric of the garment is the irritant. A positive reaction to patch 3 shows that the dermatitis is not caused by an impurity or contaminant of the cleaning fluid; a negative reaction to patch 3 and a positive reaction to patch 2 show that there is an impurity or contaminant in the cleaning fluid.

Patch tests should be performed on a control, first with a piece of the garment that actually caused the dermatitis. If the control gives a positive reaction, the garment contains a primary cutaneous irritant. If the control gives a negative reaction, it shows that the garment does not contain a primary cutaneous irritant. If this is the case, a patch test should be performed on the control with a piece of the offending garment from ten to fourteen days after the first patch test has been removed. A positive reaction at this time will show that there is a nonvolatile sensitizer remaining on the garment.

ADMINISTRATION OF AMMONIUM CHLORIDE

To the Editor:—Is there any good reason why I should not expect the same expectorant action from the enteric coated tablet form of ammonium chloride as from a solution? If so, please amplify.

Manassah Kanee, M.D., Brooklyn.

ANSWER.—The expectorant action of ammonium chloride is due partly to some direct central stimulation but mainly to a reflex from its irritant action on the stomach and to a lesser degree on the intestine. Thus it can be readily understood that a greater degree of expectorant action will be obtained from a solution of ammonium chloride than from an equivalent amount of enteric coated tablets. If enteric coated tablets are employed, a much larger dose will be necessary to obtain a comparable degree of expectorant action.

DISINFECTION OF MATTRESSES

To the Editor:—Please give me what information you can regarding the disinfection and sterilization of mattresses, both for bacteria and for vermin; also any special information along this line on the new latex mattresses.

M.D., Indiana.

ANSWER.—Sterilization in terms of heat rarely if ever can be carried out without deleterious effects on either cotton felt or horsehair mattresses; consequently that method of sterilization is not recommended. It is advised that such mattresses be incased in removable, washable muslin covers when in use. Disinfection to some degree may be effected by removing the covers and then brushing the entire surface of the mattress thoroughly with 2 per cent saponated solution of cresol or similar antiseptic agents and then airing it for two or three hours, preferably in the sun. Relative to the infestation of mattresses by vermin, it has been found that subjecting them to hydrocyanic acid gas in a closed vault for twenty-four hours kills all forms of animal life without harming the material to any degree. Caution must be exercised in the use of this chemical agent.

Latex mattresses are claimed by their nature to be moth and vermin proof. It has been reported that exposure to direct sunlight brings about the most definite and rapid deterioration of this type of mattress. Under these conditions the outside layers undergo discoloration and destruction. However, these mattresses can be sterilized by autoclaving them at a temperature of 240 F. for fifteen minutes and but a slight degree of deterioration occurs when this procedure is instituted. Also these mattresses can be placed in the large laundry wash wheels and handled in the same way as linen in the large extractors and driers with no bad results apparently. In addition it has been stated that human wastes, ordinary antiseptic solutions and medications, with the exception of oils, have no harmful effects on them.

SULFAPYRIDINE IN BACTERIAL ENDOCARDITIS

To the Editor:—A case of subacute bacterial endocarditis has gone undiagnosed for twelve weeks owing to the delayed occurrence of petechiae and the absence of a definite heart murmur. July 4, blood culture showed a growth of Streptococcus viridans by a reliable laboratory. The patient was placed on 1 Gm. of sulfapyridine every four hours for five doses and has since been receiving 3 Gm. every twenty-four hours. He is showing some mild gastric disturbances but nothing more. A white blood count, hemoglobin determination and urinalysis are done every day. The results have been within normal limits. There has been no elevation of temperature since eight hours after the drug was started. The literature leads me to believe that this drug is rather toxic and I want to use due caution. In the only two cases I have seen reported, by Ellis, there was no mention of the period of time over which it was given or the dosage. Has any one succeeded in curing these cases with this drug? Do you think that the larger dose of 3 Gm. every twenty-four hours should be continued as long as tolerated in the hope that the focus on the heart valves will be eradicated? What is the longest period of time over which this drug has been given and what was the dosage? Should it not be discontinued gradually in endocarditis as in the treatment of pneumonia?

M.D., Texas.

ANSWER.—Whitby (*Lancet* **2**:1095 [Nov. 12] 1938) has reported that he observed two patients with subacute bacterial endocarditis in whom the administration of sulfapyridine prolonged life and brought about a general improvement. Ellis (*ibid.* **2**:1521 [Dec. 31] 1938) has reported similar observations. Unpublished reports to date show that sulfapyridine as well as sulfanilamide may bring down the temperature and pulse for a considerable time in patients ill with subacute bacterial endocarditis.

Long and Bliss (The Clinical and Experimental Use of Sulfanilamide, Sulfapyridine and Allied Compounds, New York, Macmillan Company) have reported that they have observed "cures" in five of sixty patients ill with subacute bacterial endocarditis and treated with sulfanilamide. It is not an uncommon occurrence to note a prompt response in the temperature and pulse of such patients after the administration of either of these drugs. A fall in the number of colonies of Streptococcus viridans in the blood generally accompanies the decrease in fever, and the blood stream may even become sterile. In many instances after a shorter or longer period of time, however, the blood culture will become positive again and the clinical manifestations of the disease will reappear and progress in general, despite further drug therapy.

Because sulfanilamide or sulfapyridine inhibits the multiplication of Streptococcus viridans in blood cultures, all blood cultures should be held for at least twenty-eight days before being discarded as negative. There is no definite rule that can be applied to determine the length of time that one can safely administer sulfapyridine.

The common toxic manifestations of the drug such as fever, rash, hemolytic anemia and hematuria generally appear in the first two weeks of treatment with the drug. Granulocytopenia is generally a late toxic manifestation, frequently appearing between the seventeenth and the thirtieth day of treatment. If a patient does not show any toxic manifestations there is no reason why the drug cannot be continued indefinitely.

One patient is known who has been receiving sulfapyridine continuously for the past seven months without any signs of toxicity. It would seem that it would be possible to continue the drug indefinitely in the case under discussion.

Five negative blood cultures taken at weekly intervals should be had, if possible, before the drug is discontinued. As far as is known there are no reports of "cure" in subacute bacterial endocarditis following sulfapyridine therapy.

It might be best to continue the drug in smaller doses, say 1.5 Gm. a day for at least two months after the patient is up and around. Also if the patient should recover and at any time in the future had to have an operative procedure on the oropharynx, prophylactic sulfapyridine or sulfanilamide should be given before and after the operative procedure.

UNILATERAL ENLARGEMENT OF BREAST IN SMALL CHILD

To the Editor:—A girl aged 30 months is in perfect health in every way except that she has an enlarged breast on the left side. It is full, rounded and soft but there is no fluid. It is about the size of the breast of a 13 year old girl. There is no pain. It came on gradually in the last twelve months and is not now progressing in size. What is there to do for this patient?

M.D., North Dakota.

ANSWER.—Unilateral enlargement of the breast in a 30 months old girl is a rather rare and unusual condition, especially when it is considered that the enlargement has been taking place since the infant was 18 months old. More frequently unilateral enlargement of the breast occurs in children between the age of 8 and 18 years. The enlargement takes place in girls between the eighth and the twelfth year and in boys between the fourteenth and the eighteenth year. One or both breasts may be enlarged. This condition is known as puberty mastitis, or mastitis adolescentium.

Occasionally hypertrophy of the breasts in young infants is associated with precocious menstruation. This precocious puberty in girls is thought to be due to hyperactivity of the pituitary gland. Others attribute this premature sexual development to ovarian tumors. Occasionally, abnormal mammary development in young female infants is unassociated with other evidence of precocious development. Such an instance is illustrated by Fred J. Taussig (The Female Reproductive System, in Brennemann's Practice of Pediatrics, Hagerstown, Md., W. F. Prior Company, 1937, volume III, chapter 31, p. 27). Among the tumors of the breast in children, angioma and lipoma may occur at any age. Carcinoma and sarcoma have also been observed.

The enlarged breast in this young child should be examined periodically. There would seem to be only two courses of procedure. As long as the growth remains stationary and the enlarged breast is soft, frequent periodic observations would seem the wisest course to follow. Progression in the growth or the occurrence of axillary glands or of nodules in the breast indicative of a malignant condition would demand immediate complete surgical removal.

NARCOTIC ADDICTION

To the Editor:—Please advise me concerning the present day treatment of morphine addiction. Although realizing the inadequacy of any ambulatory form of therapy, this is what I am most interested in. Do you know anything about the present work on combining morphine with insulin and thus reducing the requirements? What is to be done with an addict who has on several occasions been institutionalized for long periods and still requires from two to four injections a day? The Harrison Narcotic Law demands that the patient be on reduction, yet this in my experience is hopeless.

Ellis M. Markell, M.D., Harrison, N. Y.

ANSWER.—There are hundreds of so-called cures or treatments of morphine addiction, and they are ever being augmented. During 1930 in a small country like Denmark, Larsen (*Ugesk. f. laeger.* **92**:1199 [Dec. 18]) reported that ten new methods for the treatment of chronic morphinism were tried. The solution of the drug evil probably does not rest on the administration of any specific cure but rather on the removal, when possible, of the underlying causes for which the drug addiction is merely an expression. In most cases, as in chronic alcoholism, it is an escape mechanism.

The complete treatment of drug addiction comprises two distinct stages. First, disintoxication and, second, rehabilitation, and of these the latter is far more important as well as far more difficult. There are scores of methods which, when properly applied, may free the addict from his drug, but by what method can he be freed from himself and made willing to stand mental and physical stress such as hundreds and thousands of people endure without resorting to narcotic relief? By rehabilitation is meant a recreation of the personality, for it is only when this is done (when it can be done) that the possibility of relapse is eliminated.

The House of Delegates of the American Medical Association in 1924 urged that federal and state governments put an end to the ambulatory treatment of narcotic addiction, whether by private physicians or by clinics or dispensaries. Ambulatory treatment is discountenanced too by the U. S. Bureau of Narcotics. Unless carefully conducted, it may constitute a violation of law.

Therapeutically, insulin cannot replace or substitute for morphine. Hirsch (*Deutsche med. Wchnschr.* **54**:1462 [Aug. 31] 1928) states that he found a low blood sugar value during withdrawal, and he gave injections of dextrose, which seemed to him to make his patients more comfortable.

Up to 1932 several writers reported good results using insulin with and without hypnotics in disintoxication treatment. How-

ever, the after-history of the insulin treatment is similar to that of most treatments which begin by being brilliant successes. A. G. Biggam and his colleagues (*Lancet* 1:922 [April 20] 1932) found the results extremely disappointing in twenty addicts treated according to this plan. Insulin is still occasionally employed with or without dextrose as part of a more general treatment. Kolb (*Hospital News*, Treasury Department, Washington, D. C., 1936) reports that it has fallen into disfavor.

Any addict who has had several successful denarcotization or disintoxication treatments and who has not an incurable, demonstrable disease that necessitates morphine for analgesic relief may have to be confined in a place where the drug is unobtainable and released only on probation as long as he abstains from narcotics.

URETHRAL STRICTURE

To the Editor:—For several years I have been dilating urethral strictures of gonorrheal origin in a patient who first came to me after a severe hemorrhage from a false passage by sound or filiform for intractable strictures of seven years' duration. He has tissue strictures which respond well to dilatation by successive sounds from 15 F. up to 27 F. But dilatations with a Kollmann dilator cause a bad reaction in that contraction along the entire urethra recurs within two weeks so that he has difficulty in voiding, and passage of a No. 15 F. is difficult, the urethra giving a dry sensation of leather. Various medicaments, including thyroid extract for resorption of fibrous tissue, have been unsuccessfully tried, for after three or four weeks the channel again closes. Mixed coccic infection in the prostate was cleared by massage and sulfanilamide. The patient went to a prominent urologic clinic, where urography being normal he was advised to have internal urethrotomy by electrothermal cutting. I thought this might result in more scarring. Is there anything otherwise to be suggested?

M.D. Michigan.

Answer.—The localization of the stricture in the urethra is of great importance in its treatment. If the stricture is situated in the anterior portion of the urethra and recurs in spite of repeated thorough dilatation, it is best treated by means of internal urethrotomy with an electrothermal knife. An electro-urethrotome has been introduced by Riba, which has greatly reduced complications that formerly followed internal urethrotomy. Internal urethrotomy should be followed later on by thorough dilatation of the urethra. The use of sounds, gradually increasing in size to No. 30 F. or 32 F., would be preferable to those of smaller caliber.

If the stricture is situated in the posterior portion of the urethra, and particularly in the prostatic urethra, internal urethrotomy is usually contraindicated, although if skilfully employed the electro-urethrotome may also be of value in this area. Thorough and repeated dilatation of the constricted areas, increasing gradually to a caliber of 35 F., usually will overcome the constriction. In case constricting bands are found near the bladder neck, they may be removed best with a resectoscope.

Thyroid extract or any other substance used for the resorption of fibrous tissues has not proved to be satisfactory.

In case of prostatic infection it would be well to continue massage and the intermittent use of either sulfanilamide or neoprontosil.

REMOVAL OF CERUMEN FROM EAR

To the Editor:—I wish to know about a solution suitable for removing without instrumentation moderately firm cerumen from the ear canal. With use of applicators, curets, spoons and the like, the factor of trauma still is to be reckoned with, and, assuming an intact drum membrane, would it be safe to use wax solvents occasionally in rendering the canal clear? Substances considered were acetone, carbon tetrachloride, xylene and benzine. I know that carbon tetrachloride works in vitro, but it produces considerable bronchial irritation on inhalation and I feared it for that reason.

R. F. Chittenden, M.D., North Hollywood, Calif.

Answer.—There is no doubt that there are certain wax solvents which could be used in the ear to soften impacted and inspissated cerumen with a view to making removal of this substance easy. Applicators, curets and spoons are not the ideal method for the removal of the cerumen. A well made metal syringe with the tip properly inserted in an upward direction so that the stream of water may get behind the plug and push it outward gives the best results. Some little instrumentation may be necessary to achieve this objective, but it should be done under good lighting and gently.

As for the various substances mentioned, it is quite possible that some of them will work. One or two at least will be irritating to the skin. Worldwide usage seems to indicate that peroxide solutions and sodium bicarbonate 4 per cent suspended in glycerin are safe and efficient. It may be that several sessions will be required before all the cerumen can be removed, but patience in proceeding in this manner will give good results nearly every time.

UNUSUAL REACTION TO ANESTHETIC FOR TONSILLECTOMY

To the Editor:—I had a peculiar reaction on a patient this morning while doing a local tonsillectomy, one that I am unable to explain. The local anesthetic I used was a 1 per cent solution of novocaine with 5 drops of epinephrine hydrochloride (1:1,000) to the ounce of solution. I had made the injection on the right side and had completed one 5 cc. injection around the left tonsil when the patient suddenly became faint and complained of double vision. Her face was normal on the right side but on the left a deathlike pallor was present, extending to the midline of the forehead, nose and chin. There was no paralysis of the facial muscles. This condition lasted for about five minutes and cleared up with only the inhalation of aromatic spirit of ammonia. The tonsils were removed and the patient was put to bed; she made the usual recovery in about fifteen minutes. Can you give me an explanation as to what possibly occurred? The patient is a woman, aged 48.

Minor E. White, M.D., Kankakee, Ill.

Answer.—The experience noted is uncommon. A fairly thorough search of the literature relating to atypical accidents following local anesthesia for the tonsil operation for the last ten years revealed practically no reports of a similar nature.

Comparable experiences have been noted, however, by oral surgeons and others working in similar fields. Kuehns, as quoted by Fischer and Grossman (Local Anesthesia in Dentistry, Philadelphia, Lea & Febiger, 1933, p. 69), states that on an experience based on 3,000 injections, injury to the blood vessels occurred in a small percentage of instances depending on the location of the injection. He notes "characteristic zones of anemia of the face or mucous membrane without severe complications following" and he also gives pictures of anemic zones following injections. In one illustration of such a zone following injection into the maxillary tuberosity there is an area of anemia involving a good part of the face.

What happened in the instance cited is difficult to say, but perhaps the epinephrine affected the sympathetic nervous system or produced a constriction of the external carotid artery or its branches supplying the face by having the needle pass through the constrictor muscle on that side.

BLOOD GROUPING AND TRANSFUSIONS IN RABBITS

To the Editor:—I am preparing to do some work on blooding of and transfusion of blood in rabbits and am wondering whether you could provide me with any information relative to the typing in these animals. Are they likely to show reactions if the types are not compatible, or are there any such types as yet worked out in the rabbit? Any collateral information on this subject will be appreciated.

Groesbeck Walsh, M.D., Fairfield, Ala.

Answer.—Isoagglutination does not occur when blood cells and serums of different normal rabbits are mixed. However, individual differences exist as far as the red cells are concerned—as many as five different agglutinogens having been identified (Levine, Philip, and Landsteiner, Karl: On Immune Isoagglutinins in Rabbits, *J. Immunol.* 17:559 [Dec.] 1929; *ibid.* 21:513 [Dec.] 1931; Fischer, W.: *Ztschr. f. Immunitätsforsch. u. exper. Therap.* 86:97 [Oct. 3] 1935). The existence of these agglutinogens was detected by injecting rabbits with the blood of other rabbits, whereupon immune isoagglutinins resulted provided the blood injected contained agglutinogens foreign to the rabbit receiving the blood. Two of the agglutinogens are particularly potent as antigens, so that antiserums are most readily obtained against these. These agglutinogens, usually designated as H_1 and H_2, have been most thoroughly studied and determine four groups—O, H_1, H_2 and H_1H_2, analogous to the four human blood groups O, A, B and AB (Castle, W. E., and Keeler, C. E.: Blood Groups in Rabbits, *Proc. Nat. Acad. Sc.* 19:403-411 [April] 1933).

One would assume, accordingly, that the initial transfusion in rabbits would cause no reaction. If, however, immune isoagglutinins result from the first transfusion, a subsequent injection of incompatible blood could give rise to a reaction.

Incidentally, there are individual serologic differences of another sort in rabbits that should be mentioned, since they might conceivably give rise to reactions when large amounts of blood are transfused. Rabbits can be divided into two classes as follows: (1) those containing an antigen related to the human agglutinogen A in their tissues and no natural anti-A agglutinin in their serum; (2) those lacking A antigen in their tissues but containing natural preformed anti-A agglutinins in their serum. The injection of a sufficient amount of blood from the latter sort of rabbit into the former type might therefore cause a reaction. For further details concerning the question of A antigens and antibodies in normal rabbits see:

Stuart, C. A.; Sawin, P. B.; Griffin, A. M., and Wheeler, K. M.: Group-Specific Agglutinins in Rabbit Serums for Human Cells, *J. Immunol.* 31:31 (July) 1936.

Wiener, A. S.: Blood Groups and Blood Transfusion, Springfield, Ill., Charles C. Thomas, Publisher, 1935, pp. 177 and 180.

FIBROSITIS

To the Editor:—Is there a definite disease entity of fibrositis? If there is, how is it diagnosed? What is the etiology? What is the treatment? What is the prognosis? I have read a pamphlet library on the subject, but I thought maybe there was some information on the subject now that was not available then. By some it is supposed to be due to a streptococcus and I have often wondered whether sulfanilamide has been used for it.

M.D., Texas.

ANSWER.—Fibrositis is a term applied to a condition, not infrequently encountered, which is characterized by stiffness, pain and aching of the muscles and tendons in the region of joints without associated objective signs except in occasional cases in which there is a slight swelling of the midphalangeal joint. The patient may have such symptoms for years, yet he never shows any of the usual signs of rheumatoid arthritis such as constitutional symptoms, x-ray changes, an increased sedimentation rate and the like. The so-called fibrositic nodule is, according to some, pathognomonic of this so-called disease syndrome. Until more pathologic data in this particular disease syndrome are available, the disease will continue to remain an obscure and bizarre one. Many cases of so-called fibrositis represent early cases of rheumatoid arthritis. Others might much better be labeled psychoneurotic rheumatism.

It is difficult to make the diagnosis with absolute certainty. It is largely a matter of exclusion. The etiology is unknown. The treatment, particularly in the chronic cases, is at best unsatisfactory. Given an individual with such symptoms lasting for years, without any objective signs, x-ray or laboratory evidence favoring rheumatoid arthritis, the prognosis is probably good. Sulfanilamide has been tried without beneficial effects. Until some one makes a more thorough-going study of patients with such complaints, the condition called fibrositis will continue to remain obscure.

INFORMING CHILDREN OF THEIR ADOPTION

To the Editor:—I was asked an unusual question by one of my patients yesterday, and I am referring to you for help. This family has two adopted children, one 6 years old and a baby of 6 months. The question has come up on how best to tell these children that they are adopted and when and how it should be done. Could you give me any information on how best to handle this situation?

M.D., Iowa.

ANSWER.—It is usually considered advisable to inform adopted children of the fact that they are adopted as early as possible. Of course 4 years is not too young to do this. Young children so informed have no emotional reaction and grow up just as secure in their status as do other children.

The common technic used is to tell them that whereas most of their friends had to be accepted, their foster parents picked them out and chose them from a group of children and liked them best. That usually pleases the child and helps break the ice.

If such children are not told when they are young there always comes a time when some one outside the family tells them, and in such a situation later on in life it is likely to cause considerable emotional reaction.

IRRADIATION OF BLOOD FOR HEMOPHILIA

To the Editor:—There is a hospital in our city which is treating a variety of illness by irradiation of the patient's blood in a container with a quartz window by means of ultraviolet rays. The blood is then returned to the patient, 500 cc. being the usual quantity taken. One of our patients suffering from hemophilia states that he is being treated by this method and that his clotting time has been reduced from 30 minutes to 9 minutes. What is the status of this therapy? Is it on a sound basis? Has there been any experimental work done to prove its value? Is it useful in allergic conditions?

F. C. Lane, M.D., Pittsburgh.

ANSWER.—Undoubtedly the treatment of hemophilic blood described would shorten the coagulation time. Anything that disturbs the chemicophysical balance of the plasma will produce this effect. The clotting time of hemophilic blood outside the body can be reduced from 80 to 90 per cent by the use of heat alone, optimal temperature about 50 C. (122 F.). If the platelets of hemophilic blood are ruptured mechanically and returned to the blood it will clot in normal time. There is no reason to believe that this treatment would be lasting. It would be similar but probably less effective than transfusion. Transfusion would have the additional benefit of restoring blood volume, hemoglobin, cells and proteins which are usually needed during the bleeding phase of this disease. Usually when blood is drawn from a patient with hemophilia and reinjected deep into the muscles of the buttocks it has a tendency to reduce the coagulation time. Intramuscular injection of normal blood is more effective. During the time a patient with hemophilia is absorbing blood from a confined hemorrhage there is a tendency toward a lower coagulation time.

This procedure of irradiating blood necessitates all the mechanical procedures of blood transfusion except typing and adds the step of irradiating. It probably has no advantage over transfusion and several drawbacks but might serve a useful purpose if the blood is of rare type or difficult to cross match.

FALLING EYELASHES

To the Editor:—Please advise me of the causes and treatment of falling eyelashes. The case I have in mind shows no evidence of a chronic blepharitis. Also, please give me some standard reference.

Preston S. Herring, M.D., Vicksburg, Miss.

ANSWER.—The usual cause of falling eyelashes is, of course, chronic blepharitis. In some cases, after the blepharitis is healed, patients develop the habit of pulling the lashes. Sometimes this becomes almost unconscious, so that they insist that they do not pull them, yet there is every reason to think that they do. There are occasional cases in which the lashes fall out without any apparent cause, like the hair on the scalp. If no blepharitis is present, the value of treatment is doubtful except that the patients can sometimes be cautioned against pulling the lashes. Sometimes the use of a 3 per cent zinc oxide ointment hydrated in hydrous wool fat will lessen the itching that prompts people to pull the lashes.

CORNEAL SCARS

To the Editor:—I have a case of opacity of the cornea due to a foreign body which I removed. The patient has been treated with 5 per cent ethylmorphine hydrochloride for one month. Recently he was placed on a 10 per cent aqueous solution of ethylmorphine hydrochloride. He is improving. At this time the scar is about the size of three pinheads. How long does it take the usual case to clear up? Is there a more effective treatment?

M.D., New Mexico.

ANSWER.—The clearing of a corneal scar depends to a great extent on the depth to which the scar involves the cornea. If the opacity is anterior to Bowman's membrane, it will easily disappear in from one to three months, with or without treatment. But if the scar itself involves Bowman's membrane and the anterior corneal stroma the possibilities are that it will never disappear entirely. Microscopic traces can always be found. Clinically, the reduction in the size and density of the scar takes a period of from three months to several years and apparently is not much influenced by treatment.

VISUAL SCREENING TEST

To the Editor:—What is the accepted opinion on telebinocular vision tests in the case of truck drivers and mechanics? Can the test be accurately and safely evaluated by laymen or do all such tests require follow-up examinations by an ophthalmologist as to the determination of the relative well-being of the eye as well as to an application of the usual visual refraction tests? Under such circumstances would these tests provide usable information that could be obtained by the Snellen chart, together with color appreciation tests?

R. V. Hoffman, M.D., South Bend, Ind.

ANSWER.—Apparently, what is desired is a visual screening test to weed out those with deficient vision. There have been several series of such screenings with telebinocular tests compared to the standard Snellen tests, and apparently the telebinocular tests are only about 70 per cent reliable and require a follow-up examination by an ophthalmologist. The Snellen test appears to be more reliable in nonmedical hands and can be applied by an intelligent person after only a short period of training. Those with normal vision can be passed on safely and those with deficient vision put under the care of an ophthalmologist. A visual screening of truck drivers should include a color vision test by all means. The Ishihara test is simple and reliable and does not require professional interpretation.

HERNIA REPAIR IN BOY

To the Editor:—What method is best for repair of a hernia in a boy ten years old? Is the Bassini operation as suitable as other types?

M.D., Florida.

ANSWER.—The type of repair of a hernia in a boy 10 years old depends somewhat on the character of the hernia and its extent. There is no objection to the Bassini operation provided that the cord is long enough and is mobile; in fact, it is probably the best operation to use. When there is a long sac or there is a patent funicular process the high ligation of the sac or the prolongation of the peritoneum is probably the main part of the operation and all that is necessary afterward is to approximate the conjoint tendon to Poupart's ligament save for the bottom of the canal and without transplantation of the cord. This operation is often serviceable.

CURARE FOR SPASTIC DISORDERS

To the Editor:—May I please have information concerning the use of curare in the treatment of spastic paralysis resulting from a birth injury.

Nicholas Palma, M.D., Paterson, N. J.

ANSWER.—In many cases of spasticity, paralysis agitans or athetosis the intravenous injection of proper preparations of curare is followed by diminution in the hypertonia or involuntary movements at a stage when voluntary motility and respiration are little or not at all embarrassed. The favorable effect may last several days. Suitable standardized preparations are, however, difficult to obtain and the margin of safety is small. The treatment must be regarded as still in an experimental stage and should not be attempted outside of special clinics.

References:

West, Ranyard: Intravenous Curarine in the Treatment of Tetanus, *Lancet* 1:12 (Jan. 4) 1936; The Pharmacology and Therapeutics of Curare and Its Constituents, *Proc. Roy. Soc. Med.* 28:565 (March) 1935.

Burman, M. S.: The Therapeutic Use of Curare and Erythroidine Hydrochloride for Spastic and Dystonic States, *Arch. Neurol. & Psychiat.* 41:307 (Feb.) 1939.

SODIUM IODIDE FOR ARTHRITIS

To the Editor:—Will you please give me the rationale of intravenous sodium iodide for arthritis, especially old gonorrheal arthritis. I would like to know the amount given and how often it can be repeated.

M.D., Iowa.

ANSWER.—The use of intravenous sodium iodide in the treatment of arthritis, especially chronic gonorrheal arthritis, is purely empirical. Any improvement noted during the time that such therapy is being administered may be coincidental rather than cause and effect.

BRUCELLA ABORTUS AGGLUTININS AND IMMUNITY

To the Editor:—For how long a time is it possible to obtain a positive agglutination test for Brucella abortus in undulant fever after all symptoms have subsided and the patient has apparently recovered? Is it advisable to continue treatment until the test is negative, regardless of symptoms?

M.D., Wisconsin.

ANSWER.—Brucella abortus agglutinins may persist for many months or years following recovery from brucellosis (undulant fever). In the majority of instances the agglutinin titer exhibits a declining trend during the first few months following the initial illness. The agglutinins may then disappear or persist at a relatively low level for long periods. In other instances the agglutinin titer may persist at high levels for many months, following the disappearance of all symptoms of brucellosis. The agglutination test does not provide a reliable guide to the immunity status of the patient. Consequently it is inadvisable to regard the agglutination test as a measure of therapeutic effectiveness.

SULFANILAMIDE AND ARSPHENAMINE

To the Editor:—Given a case of gonorrhea and syphilis, is the use of neoarsphenamine a contraindication to the simultaneous use of sulfanilamide, neoprontosil and the like for the treatment of gonorrhea?

Robert R. Livingston, M.D., Glenwood Springs, Colo.

ANSWER.—If a patient is suffering from both gonorrhea and syphilis, there is no reason why arsphenamine or neoarsphenamine and sulfanilamide should not be used concurrently. At the present time there is no available evidence to indicate that the concurrent use of these drugs increases the toxic results which might arise from the individual use of either drug.

VOICE CHANGES FROM INHALATION OF HELIUM-OXYGEN

To the Editor:—What is the explanation for the change in the voice after the inhalation of a few breaths of a helium-oxygen mixture?

M.D., Illinois.

ANSWER.—Human beings are accustomed to talk in an atmosphere of air. Ordinarily the esophagus, larynx and oral passages are filled with air. The velocity of sound in any gas is the function of the density of the molecules. For example, if the temperature and pressure remain the same, the velocity of sound in the air is approximately 330 meters a second and the velocity of sound in helium is 970 meters a second. The velocity of sound in a helium-oxygen mixture (approximately 80 per cent helium and 20 per cent oxygen) is much greater than that in air. Therefore, a person talking in an atmosphere of helium-oxygen mixture would unconsciously set the muscles of his larynx to cause a sound he expects to hear in air. The fundamental pitch is unaffected but the sound pattern of the resonating cavities of the nasopharyngeal passages is changed. Thus the overtone content is lowered automatically by the mixture and the voice will sound deeper.

INGESTED IODIDE AND HAIR COLOR

To the Editor:—A beautician claims that the hair will appear to change color to reddish brown when the system is saturated with iodine taken even in therapeutic doses. Is this true? He claims that this is though: to be a way of averting gray hair.

P. W. Van Metre, M.D., Rockwell City, Ia.

ANSWER.—If this theory were correct, the world would be full of reddish brown hair, for every syphilitic patient under proper treatment ingests iodine in considerable amounts over long periods. There is no scientific ground for the idea.

CUCUMBERS AND MELONS DURING PREGNANCY

To the Editor:—Is there any basis for the idea that cucumbers and melons of all kinds are contraindicated in a normal pregnancy, i. e. when there is no digestive disturbance? I have been told that they contain histamine, which would have a tendency to produce an abortion.

M.D., Pennsylvania.

ANSWER.—There is no basis for the idea that cucumbers and melons are contraindicated in normal pregnancy. The amount of histamine that these fruits contain is negligible. Even large doses of histamine have little oxytocic action.

EFFECT OF LIVER AND IRON ON LEUKOCYTES

To the Editor:—What is the effect on the differential white count of prolonged liver and iron therapy in secondary anemia?

M.D., Wisconsin.

ANSWER.—Prolonged treatment of secondary anemia with liver and iron has no definite effect on the differential white count. If the liver is given by mouth an eosinophilia frequently results. Liver parenterally may affect the differential in a temporary manner if there is much local reaction or if the patient becomes sensitive to it.

NONINFLAMMABLE X-RAY FILMS

To the Editor:—Will you kindly advise me in what year the present type of noninflammable x-ray film came into general use by the medical profession?

M.D., New Jersey.

ANSWER.—The safety x-ray film was first made available about 1924. It gained rapidly in use after 1928 but was not generally accepted until 1933, when the price was made the same as the nitrate base film.

UNEQUAL BODY DEVELOPMENT

To the Editor:—In Queries and Minor Notes in The Journal, June 10, the answer given under the heading "Unequal Body Development" is incomplete. The questioner seeks information regarding the etiology and treatment of persons who are either (1) well developed from the hips downward but of poor development above the hips or (2) normally developed down to the hips but with excessively enlarged legs. The reply states that these may be physiologic variations from the normal and thus overlooks completely the fact that the questioner might be dealing with cases of progressive lipodystrophy, as far as the first type of patient is concerned, and with Milroy's disease as regards the second type.

A. M. Targow, M.D., Chicago.

COCCYGODYNIA

To the Editor:—In Queries and Minor Notes in The Journal, June 17, page 2553, appears a discussion of the treatment of coccygodynia. According to recent literature on this syndrome, pain is present about the coccyx and superior gluteal region and even along the course of the sciatic nerve. Examination usually reveals muscle spasm of the levator ani and the piriformis and coccygeus muscles. In order to obtain relief, treatment must be directed to produce an amelioration of muscle spasm by heat and massage. The discussion fails to make any mention of this most important therapeutic measure of massage. Treatment is carried out as follows: Pelvic muscular relaxation is begun by placing the patient in a hot bath, whirlpool, or by the use of pelvic diathermy. The index finger is inserted full length into the rectum and pressure is directed posterolaterally, with stroking in the direction of the long axis of the muscle fibers. Massage is gentle at first so as not to traumatize the tender muscles, but in subsequent visits the pressure of massage is increased. Failure to obtain some measure of relief in from six to eight treatments calls for the consultation of an orthopedist. Thiele (The Journal, Oct. 16, 1937, p. 1271) and eight associated proctologists treated eighty patients by this method and noted cures in 60 per cent, improvement in 33 per cent and failure in 6.3 per cent.

M. K. Newman, M.D., and J. M. Berris, M. D., Detroit.

Medical Examinations and Licensure

COMING EXAMINATIONS

NATIONAL BOARD OF MEDICAL EXAMINERS SPECIAL BOARDS

Examinations of the National Board of Medical Examiners and Special Boards were published in THE JOURNAL, August 12, page 619.

STATE AND TERRITORIAL BOARDS

ALABAMA: Montgomery, June 18-20. Sec., Dr. J. N. Baker, 519 Dexter Ave., Montgomery.

ARIZONA: *Basic Science.* Tucson, Sept. 19. Sec., Dr. Robert L. Nugent, Science Hall, University of Arizona, Tucson.

ARKANSAS: *Medical (Regular).* Little Rock, Nov. 9-10. Sec., Dr. D. L. Owens, Harrison. *Medical (Eclectic).* Little Rock, Nov. 9-10. Sec., Dr. Clarence H. Young, 1415 Main St., Little Rock.

CALIFORNIA: *Written examination.* Sacramento, Oct. 16-19. *Oral examination* (required when reciprocity application is based on a state certificate or license issued ten or more years before filing application in California), San Francisco, Nov. 15. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento.

COLORADO: *Endorsement.* Denver, Oct. 3. *Examination.* Denver, Oct. 4-6. Sec., Dr. Harvey W. Snyder, 831 Republic Bldg., Denver.

CONNECTICUT: *Basic Science.* New Haven, Oct. 14. *Prerequisite to license examination.* Address State Board of Healing Arts, 1895 Yale Station, New Haven. *Medical (Regular). Examination.* Hartford, Nov. 14-15. *Endorsement.* Hartford, Nov. 28. Sec., Dr. Thomas P. Murdock, 147 W. Main St., Meriden. *Medical (Homeopathic).* Derby, Nov. 14-15. Sec., Dr. Joseph H. Evans, 1488 Chapel St., New Haven.

DISTRICT OF COLUMBIA: *Basic Science.* Washington, Oct. 23-24. *Medical.* Washington, Nov. 13-14. *Forms* application and supporting data must be received before Oct. 1. Sec., Commission on Licensure, Dr. George C. Rubland, 203 District Bldg., Washington.

FLORIDA: Jacksonville, Nov. 13-14. Sec., Dr. William M. Rowlett, Box 786, Tampa.

GEORGIA: Atlanta, Oct. 10-11. Joint Sec., State Examining Boards, Mr. R. C. Coleman, 111 State Capitol, Atlanta.

IDAHO: Boise, Oct. 3-4. Dir., Bureau of Occupational License, Mr. H. B. Whittlesey, State Capitol Bldg., Boise.

ILLINOIS: Chicago, Oct. 17-19. Superintendent of Registration, Department of Registration and Education, Mr. Homer J. Byrd, Springfield.

INDIANA: Indianapolis, June 18-20. Sec., Board of Medical Registration and Examination, Dr. J. W. Bowers, 301 State House, Indianapolis.

IOWA: *Basic Science.* Des Moines, Oct. 10. Dir., Division of Licensure and Registration, Mr. H. W. Grefe, State Department of Health, Capitol Bldg., Des Moines.

KENTUCKY: Louisville, Dec. 5-7. Sec., State Board of Health, Dr. A. T. McCormack, 620 S. Third St., Louisville.

MAINE: Portland, Nov. 14-15. Sec., Board of Registration of Medicine, Dr. Adam P. Leighton, 192 State St., Portland.

MARYLAND: *Regular.* Baltimore, Dec. 12-15. Sec., Dr. John T. O'Mara, 1215 Cathedral St., Baltimore. *Homeopathic.* Baltimore, Dec. 12-13. Sec., Dr. John A. Evans, 612 W. 40th St., Baltimore.

MASSACHUSETTS: Boston, Nov. 14-16. Sec., Board of Registration in Medicine, Dr. Stephen Rushmore, 413-F State House, Boston.

MICHIGAN: Lansing, Oct. 11-13. Sec., Board of Registration in Medicine, Dr. J. Earl McIntyre, 100 W. Allegan St., Lansing.

MINNESOTA: *Basic Science.* Minneapolis, Oct. 3-4. Sec., Dr. J. Charnley McKinley, 126 Millard Hall, University of Minnesota, Minneapolis. *Medical.* Minneapolis, Oct. 17-19. Sec., Dr. Julian F. Du Bois, 350 St. Peter St., St. Paul.

MISSISSIPPI: *Reciprocity.* Jackson, December. Asst. Sec., State Board of Health, Dr. R. N. Whitfield, Jackson.

MONTANA: *Reciprocity.* Helena, Oct. 2. *Examination.* Helena, Oct. 3-4. Sec., Dr. S. A. Cooney, 216 Power Block, Helena.

NEBRASKA: *Basic Science.* Lincoln, Oct. 3-4. Dir., Bureau of Examining Boards, Mrs. Clara Perkins, 1009 State Capitol Bldg., Lincoln.

NEW HAMPSHIRE: Concord, Sept. 14-15. Sec., Board of Registration in Medicine, Dr. T. P. Burroughs, State House, Concord.

NEW JERSEY: Trenton, Oct. 17-18. Sec., Dr. Earl S. Hallinger, 28 W. State St., Trenton.

NEW MEXICO: Santa Fe, Oct. 9-10. Sec., Dr. Le Grand Ward, 135 Sena Plaza, Santa Fe.

NEW YORK: Albany, Buffalo, New York and Syracuse, Sept. 18-21. Chief, Bureau of Professional Examinations, Mr. Herbert J. Hamilton, 315 Education Bldg., Albany.

NORTH DAKOTA: Grand Forks, Jan. 2-5. Sec., Dr. G. M. Williamson, 4½ S. Third St., Grand Forks.

OKLAHOMA: Oklahoma City, Dec. 13. Sec., Dr. James D. Osborn, Jr., Frederick.

OREGON: *Basic Science.* Portland, Oct. 28. Sec., State Board of Higher Education, Mr. Charles D. Byrne, University of Oregon, Eugene.

PUERTO RICO: Santurce, Sept. 5. Sec., Dr. O. Costa Mandry, Box 3854, Santurce.

RHODE ISLAND: Providence, Oct. 5-6. Sec., Board of Examiners in Medicine, Dr. Robert M. Lord, 122 Waterman Ave., Providence.

SOUTH CAROLINA: Columbia, Nov. 14. Sec., Dr. A. Earle Boozer, 505 Saluda Ave., Columbia.

SOUTH DAKOTA: Pierre, Jan. 16-17. Dir., Medical Licensure, Dr. G. J. Van Heuvelen, State Board of Health, Pierre.

VERMONT: Burlington, Feb. 13-15. Sec., Board of Medical Registration, Dr. W. Scott Nay, Underhill.

VIRGINIA: Richmond, Dec. 13. Sec., Dr. J. W. Preston, 30½ Franklin Road, Roanoke.

WISCONSIN: *Basic Science.* Madison, Sept. 23. Sec., Professor Robert N. Bauer, 3414 W. Wisconsin Ave., Milwaukee. *Medical.* Madison, Jan. 9-11. Sec., Dr. Henry J. Gramling, 507 Mariner Tower, Milwaukee.

WYOMING: Cheyenne, October. Sec., Dr. M. C. Keith, Capitol Bldg., Cheyenne.

South Carolina June Examination

Dr. A. Earle Boozer, secretary, State Board of Medical Examiners of South Carolina, reports the written examination held at Columbia, June 26-28, 1939. The examination covered seventeen subjects and included forty-eight questions. An average of 75 per cent was required to pass. Forty-five candidates were examined, all of whom passed. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
Howard University College of Medicine		(1937)	76.4
Indiana University School of Medicine		(1935)	86.4
Tulane University of Louisiana School of Medicine		(1939)	87
Temple University School of Medicine		(1939)	83.1
University of Pennsylvania School of Medicine		(1939)	80.9
Medical College of the State of South Carolina	78.3, 78.3, 78.4, 78.6, 79, 79.5, 80, 80.4, 80.9, 81.6, 81.8, 81.9, 82.4, 82.6, 82.8, 83, 83.1, 83.3, 83.5, 83.5, 84.3, 84.5, 85, 85.1, 85.5, 85.8, 86.1, 86.1, 86.3, 86.5, 88.5, 88.8, 89.4, 89.5, 90.9, 90.9	(1939)	75.1,
University of Tennessee College of Medicine		(1937)	82.5
Vanderbilt University School of Medicine		(1935) 78.5, (1939)	85

Seven physicians were licensed by reciprocity on April 12 and July 11. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Georgia Medical Department		(1929)	Georgia
University of Louisville School of Medicine		(1937)	Kentucky
Johns Hopkins University School of Medicine		(1929)	Ohio
University of Minnesota Medical School		(1929)	N. Carolina
Meharry Medical College		(1920)	Georgia,
		(1937)	Tennessee
University of Tennessee College of Medicine		(1929)	Alabama

Kansas June Report

Dr. J. F. Hassig, secretary, Kansas State Board of Medical Registration and Examination, reports the written examination held at Kansas City, June 13-14, 1939. The examination covered ten subjects and included 100 questions. An average of 75 per cent was required to pass. Seventy-eight candidates were examined, all of whom passed. Eight physicians were licensed by reciprocity and one physician was licensed by endorsement. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
Rush Medical College		(1937)	87.4
School of Medicine of the Division of the Biological Sciences		(1938)	81.7
University of Kansas School of Medicine	77.4, 80.7, 80.8, 81.2, 81.3, 81.3, 81.6, 81.6, 82.4, 82.5, 82.6, 82.6, 82.8, 82.9, 83.1, 83.1, 83.2, 83.3, 83.7, 83.9, 83.9, 84.1, 84.2, 84.3, 84.4, 84.5, 84.5, 84.5, 84.6, 84.6, 85, 85.1, 85.2, 85.5, 85.7, 86.3, 86.4, 86.5, 86.6, 86.6, 86.8, 86.9, 87, 87.1, 87.1, 87.3, 87.5, 87.5, 87.6, 87.6, 87.7, 87.7, 87.7, 87.8, 87.9, 88.1, 88.7, 88.8, 89.7, 89.7, 89.9, 90, 91.1, 91.2, 91.4, 91.4	(1939)	76.9,
University of Michigan Medical School		(1937)	85.8
Washington University School of Medicine		(1939)	88.6
Creighton University School of Medicine		(1938) (1939)	83.7, 86.8, 87.5, 89.2
University of Nebraska College of Medicine		(1938)	84.5
University of Wisconsin Medical School		(1938)	87, 87.1

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Indiana University School of Medicine		(1929)	Indiana
Tulane University of Louisiana School of Medicine		(1938)	Louisiana
Harvard Medical School		(1933)	Penna.
University of Michigan Medical School		(1936)	Michigan
Washington University School of Medicine		(1934)	Missouri
University of Oklahoma School of Medicine		(1936)	Oklahoma
Baylor University College of Medicine		(1937), (1938)	Texas

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Cornell University Medical College		(1929)	N. B. M. Ex.

Oregon June Examination

Dr. Joseph F. Wood, secretary, Oregon State Board of Medical Examiners, reports the written examination held at Portland, June 20-22, 1939. The examination covered sixteen subjects. An average of 75 per cent was required to pass. Seventeen candidates were examined, all of whom passed. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
Stanford University School of Medicine		(1938)	87.3
Northwestern University Medical School		(1938)	82*
Rush Medical College		(1938)	85.9
University of Louisville School of Medicine		(1934)	87.1
University of Nebraska College of Medicine		(1938)	82.5
University of Oregon Medical School	87.3, (1938) 84.7, 85.1, 85.9, 85.9, 86.3, 86.8, 87, 89.4	(1937)	85.6,
Jefferson Medical College of Philadelphia		(1938)	85.5
Osteopath †			84.8

Twelve physicians were licensed by reciprocity and one physician was licensed by endorsement from January 4 through June 21. The following schools were represented:

School	Year Grad.	Reciprocity with
LICENSED BY RECIPROCITY		
Stanford University School of Medicine	(1934)	Minnesota
State University of Iowa College of Medicine	(1911)	Iowa
University of Louisville School of Medicine	(1933)	Kentucky
University of Minnesota Medical School	(1938)	Minnesota
Washington University School of Medicine	(1931), (1937)	Missouri
Creighton University School of Medicine	(1934, 2)	Nebraska
University of Nebraska College of Medicine	(1930)	Nebraska, (1931) Iowa
University of Oregon Medical School	(1937)	Washington
Queen's University Faculty of Medicine	(1932)	Maryland

School	Year Grad.	Endorsement of
LICENSED BY ENDORSEMENT		
Harvard Medical School	(1936)	N. B. M. Ex.

* This applicant has received the M.B. degree and will receive the M.D. degree on completion of internship.
† Licensed to practice osteopathy and surgery.

Book Notices

Community Health Organization: A Manual of Administration and Procedure Primarily for Urban Areas. Edited by Ira V. Hiscock, Professor of Public Health, Yale University School of Medicine, New Haven, Connecticut. Third edition. Cloth. Price, $2.50. Pp. 318. New York: Commonwealth Fund; London: Oxford University Press, 1939.

This well known book gives the most complete and comprehensive, as well as detailed, description of how a community can organize itself for health. It deals with official agencies, voluntary agencies, hospitals and outpatient facilities, the financial aspects of health in the community, health surveys, school health services and the newer health problems, such as nutrition, mental hygiene, industrial hygiene, cancer and heart disease. To the medical reader the book is disappointing in that it gives less attention to the part played by organized medicine in community health organization and in that it does not acknowledge the fact that many of the health surveys and so-called health studies which have been made in recent years have been challenged as to their validity by the medical profession. Each chapter includes a table of salaries and other budgetary items, which in most instances are considerably in excess of sums which most cities or even states have shown a willingness to provide up to the present. The book is of special usefulness to the public health worker and the student of public health. It should be interesting and valuable also to physicians serving organized medicine on public health and public relation committees, to give them an understanding of the existing organization of public health departments and the recommendations of those who have studied methods and organization in the public health field in many communities. The editor of the book, though not a physician, has been notably open minded in giving due place to the physician in the health picture. In this book more stress is laid on the physician attached to health departments, schools and other organized agencies than to the practicing physician, who should be drawn more and more into the public health program, as recognized on page 226, in connection with cancer, where the statement is made "The family physician is the key person in the cancer control movement; on his judgment the final result often depends." The family physician is also the key person in practically all public health movements, and on his judgment depends the final outcome.

Practical Child Psychotherapy. By Dr. Curt Boenheim. With a foreword by Prof. Dr. H. Finkelstein. Cloth. Price, 10s. 6d. Pp. 177. London: John Bale Medical Publications, Ltd., 1938.

The author has provided a short, comprehensive book on practical child psychotherapy presented from a medical point of view. Only those conditions which are most important from the standpoint of the pediatrician and general practitioner are discussed. The author has an intimate knowledge of children and their normal reactions and has used this knowledge to temper and to mold his attitudes as to the appropriate psychotherapeutic methods to be applied in a given case. Throughout the entire presentation the common sense approach is apparent.

The book has two main divisions. In the first there is a brief discussion of the concepts embodied in the various schools of psychology. It is apparent that the author subscribes at least in part to the teachings of the psychoanalytic school. However, when considering the indications for analytic treatment he sharply differentiates the more or less transient abnormalities occurring in children (the type being largely dependent on the stage of development of the child) and the deep rooted, more or less permanent maladjustments occurring in adults. He also presents the indications for psychotherapy and the methods of choice in individual cases. He states that therapeutic methods should be chosen in accordance with the type and severity of the disorder, ranging from simple reassurance of the parents to psychoanalytic methods for the more difficult problems. In contradistinction to the analytic school, which opposes the treatment of symptoms themselves, fearing that this may merely lead to a covering of a personality difficulty, the author believes that in childhood the symptoms need not reflect some deep rooted disorder. Therefore successful therapy directed at the symptom may clear up the entire situation. Any method, whether medical or psychotherapeutic, that can alter the situation is acceptable.

The second portion of the book deals with the various disorders and the appropriate therapy in each case. The discussion of enuresis, sleep disorders and motor disturbances (tics, non-epileptic fits) is especially good. The author definitely feels that a majority of the so-called behavior disturbances of children can be treated by the pediatrician and general practitioner. He is a pediatrician who has specialized in child psychology and psychotherapy, and hence his book reflects tried and true pediatric principles coupled with the specialized technics of modern psychotherapy.

The Chicago Recreation Survey 1937. Volume III: Private Recreation. A Project Sponsored Jointly by the Chicago Recreation Commission and Northwestern University. By Arthur J. Todd, Chairman, Department of Sociology, Northwestern University. In collaboration with William F. Byron, Chairman, Division of Social Work, Northwestern University, Howard L. Vierow, Director, Chicago Recreation Survey. Conducted under the auspices of the Works Progress Administration, National Youth Administration and Illinois Emergency Relief Commission. Paper. Pp. 167, with illustrations. Chicago, 1938.

This is volume III of the Chicago Recreation Survey, of which previous volumes have been reviewed in THE JOURNAL (Sept. 3, 1938, p. 965). The current volume deals with private recreational opportunities as distinguished from public recreational facilities and commercial recreational enterprises. It takes in therefore settlements, community centers and related group work agencies, boys' clubs, the Y. M. C. A., the C. Y. O, the K. of C., B'nai B'rith, Boy Scouts, Girl Scouts, Campfire Girls, Girl Reserves, nationality groups, fraternal organizations, social clubs, athletic organizations, private contributions to art, music, literature and drama, industrial and trade union recreation, and miscellaneous topics such as hobby and special interest clubs, housing projects and district recreation committees. Each of these topics receives attention in a narrative chapter in which are given the essential facts about establishment, organization, membership, purposes and budgets. Like the companion volumes in the series, this study is well illustrated with colored maps showing population and the distribution of various recreational facilities, such as the Chicago Federation of Settlements, miscellaneous settlement houses and neighborhood centers, religious agencies, gymnasiums, boys' clubs, the Y. M. C. A., the Y. W. C. A., the C. Y. O., K. of C. Councils, Boy Scouts, Girl Reserves, Girl Scouts, Campfire Girls, foreign language groups, Masonic lodges, luncheon service clubs, American Legion posts and auxiliaries, private golf clubs, softball playing fields and camps, the distribution of juvenile delinquents and the relationship of delinquents to boy population between the ages of 10 and 16. The study is a storehouse of information. The conclusions are left largely to the reader, and there is no formal chapter on conclusions and recommendations. To a great extent the facts are permitted to tell the story, which is perhaps best summarized in a quotation from page 5: "Private philanthropy is perhaps more necessary than ever to preserve alive the humane spirit against the inroads of routine and professionalism, and to find new paths through experimentation. Much the same may be said of private agencies doing work of the handicapped . . . the private agencies are indispensable to all fields of social amelioration. They never were more needful in the field of recreation than at the present moment."

Dental Surgery and Pathology. By J. F. Colyer, M.B.E., LL.D., F.R.C.S., Consulting Dental Surgeon to Charing Cross Hospital, London, and Evelyn Sprawson, M.D., D.Sc., M.R.C.S., Dental Surgeon and Lecturer on Dental Surgery and Pathology to the London Hospital. Seventh edition. Cloth. Price, $12. Pp. 1,067, with 979 illustrations. New York, Toronto & London: Longmans, Green & Co., 1938.

This volume will be of greater interest to the practicing dentist who does minor surgical interventions than to the surgeon who is practicing major surgical operations and is particularly interested in diseases and conditions of the mouth and face. The first half deals comprehensively with dental problems, such as pathologic dentition, variations in the size, structure and position of the teeth, abnormalities of position and occlusion. In chapters X and XI the authors discuss caries, while in chapter XIII they consider diseases of the pulp. Chapter XVII will be of especial interest to the dentist, as it is devoted to dental radiology, including the technic of dealing with and the diagnosis of pathologic conditions. Chapter XXVII considers the extraction and surgical removal of teeth. Chapter XXXV is especially helpful to the dentist, as it treats of rather unusual conditions encountered in the course of dental practice, such as burning of the tongue and mouth in blood dyscrasias. The book is well written and should appeal to the dentist who is interested more in disease conditions of the oral cavity than in simple dental repair.

Problems of Aging: Biological and Medical Aspects. Edited by E. V. Cowdry. A Publication of the Josiah Macy Jr. Foundation. Cloth. Price, $10. Pp. 758, with 121 illustrations. Baltimore: Williams & Wilkins Company, 1939.

This book consists of articles by a number of competent scientists on major special problems of aging. The list of the authors and chapter headings will give a good general idea of the authorship and the scope of the book: William Crocker, aging in plants; H. S. Jennings, senescence and death in protozoa and invertebrates; L. O. Howard, aging of insects; T. Wingate Todd, aging of vertebrates; Clark Wissler, human cultural levels; Louis I. Dublin, longevity in retrospect and in prospect; A. E. Cohn, cardiovascular system and blood; E. B. Krumbhaar, lymphatic tissue; A. C. Ivy, digestive system; Jean R. Oliver, urinary system; T. Wingate Todd, skeleton, locomotor system and teeth; F. D. Weidman, aging of the skin; A. J. Carlson, the thyroid, pancreatic islets, parathyroids, adrenals, thymus and pituitary; Edgar Allen, female reproductive system; Earl T. Engle, male reproductive system; G. V. Hamilton, changes in personality and psychosexual phenomena with age; Macdonald Critchley, aging of the nervous system; Jonas S. Friedenwald, the eye; Stacy R. Guild, the ear; Walter R. Miles, psychologic aspects of aging; C. M. McCay, chemical aspects of aging; Walter B. Cannon, aging of homeostatic mechanisms; E. V. Cowdry, aging of tissue fluids; William deB. MacNider, aging processes considered in relation to tissue susceptibility and resistance, and Lewellys F. Barker, aging from the point of view of the clinician. It is an important and timely contribution, in fact the most comprehensive and authoritative volume on aging now available.

Interns Handbook: A Guide, Especially in Emergencies, for the Intern and the Physician in General Practice. By Members of the Faculty of the College of Medicine, Syracuse University, Syracuse, N. Y. Under the direction of M. S. Dooley, A.B., M.D., Chairman Publication Committee. Second edition. Cloth. Price, $3. Pp. 523, with 10 illustrations. Philadelphia, Montreal & London: J. B. Lippincott Company, 1938.

This volume contains much information that should be useful to the intern. An attempt is made, however, to cover entirely too much territory for a handbook. The book was devised by an editorial committee aided by thirty-five other committees (each with from one to thirteen members), consisting of committees on allergy, anesthesia, antisyphilitic treatment, dehydration, dermatology, diet drugs, fever, gynecology, injuries of the head, history, infectious diseases, intern relations, laboratory, medical jurisprudence, medicine, neurology, nursing, obstetrics, ophthalmology, otolaryngology, pediatrics, proctology, psychiatry, resuscitation, serums and vaccines, sex hormones, shock, social service, solutions, surgery, toxicology, urology, vehicles and flavors, and vitamins. The first section deals with the relation of the intern, hospital and public and contains a section on medical jurisprudence which has some material that is not applicable in all states. The section on laboratory medicine comprises useful information on bacteriologic, biochemical and pathologic tests. The general section on medicine and surgery attempts to cover the hospital treatment features of many diseases. The statement which appears under the heading "Lobar Pneumonia"—"The complete treatment of lobar pneumonia is beyond the scope of this book"—might well be applied to many of the other discussions in this volume. It is granted the author that some of these sections are followed by bibliographies, but it seems unlikely that the average graduate of the modern medical school would be unfamiliar with an adequate bibliography for the treatment of conditions which he encounters in the hospital. Furthermore, the availability in the average hospital of the *Quarterly Cumulative Index Medicus* would give him the latest references to these subjects. The monographs on drugs are well prepared, but they are listed under their Latin names, so that in some instances to locate them may be time consuming to the intern. It is surprising that the author finds it essential to give an outline of a history and physical examination, as it would seem reasonable to presume that the training of class A medical schools should have made the intern adept at including all essential information in taking histories and reporting physical examinations. The advisability of including such brief information as the following may be questioned:

> Carcinoma of the Skin:
>
> Epitheliomas, the most important of which are (*a*) squamous or prickle-cell; (*b*) basal cell. They are usually not serious if an early diagnosis and removal is made. The history of a preexisting growth such as a keratosis suddenly enlarging suggests malignant change.
>
> Treatment. Complete destruction by radium, roentgen ray, electrocoagulation or surgical excision. Do a biopsy at the time of removal to confirm the diagnosis and to guide further treatment.

The volume is a useful one for those who keep in mind the fact that for adequate information on some of the subjects discussed bibliographies given in the handbook and other references are necessary.

El volumen de la sangre circulante y sus variaciones normales y patológicas: Estudio clínico-experimental. Por el Dr. Elías Levín, jefe de Clínica del Hospital Rosario. Con prefacio del Profesor Bernardo A. Houssay. Paper. Pp. 294, with 25 illustrations. Rosario: Establ. Graf. Pomponio, 1938.

The introduction deals adequately with the distinction between circulating blood volume and the total volume of blood in the body, of which a part is usually in an organ of blood storage, as the spleen, skin, liver, great veins or lungs. The author describes in detail the method he uses, injecting trypan-red and sampling the blood twice at three-four and five-seven minutes. He uses a colorimeter to determine the extent of dilution of the dye in plasma. In a series of fifty-six normal persons from 19 to 73 years of age the average blood volume was 78 cc. per kilogram of body weight, of which plasma made up 42 cc. per kilogram and cells 36 cc. per kilogram. Acceptable variation in duplicate determinations was 4 per cent or less. In the chapter on physiologic variations in volume he emphasizes the increase in circulating blood volume on exposure to heat but presents no data of his own on that. There was a consistent fall when a subject is studied seated upright to a figure about 7 per cent less than when lying down. In four unstable emotional subjects this fall was much more marked, averaging a 17 per cent diminution in circulating blood volume. The author has made many determinations at short time intervals to ascertain what effect on blood volume acute experiments have, and he includes data on the effect of drinking water, of alcohol, of thyroxine and of muscular work in healthy and sick subjects. Of interest is the splenectomized subject, who showed a 5 per cent diminution in circulating blood volume on exertion. About 1,000 determinations were done, mostly on sick subjects, and some data are presented on hemorrhage shock, anesthesia, fevers, polycythemia and blood dyscrasias and kidney diseases, which in general agree with the present concepts. The largest single group of data refers to cardiac patients and consists of a table listing the state of circulation with the blood volume in fifty-three such cases. It is quite obvious that decompensation is regularly associated with a significant increase in the circulating blood volume. There is a good index and bibliography, including titles. The author believes that, if a sufficiently simple technic could be perfected, blood volume measurements would be routine in hospital prac-

tice. However, he has used his method as a research tool and presents his data to clinicians for them to know about in studying their cases. He has helped especially in the serial measurements on the same subject.

Educating for Health: A Study of Programs for Adults. By Frank Ernest Hill. Boards. Price, $1.25. Pp. 224. New York: American Association for Adult Education, 1939.

This book deals, as its title indicates, with health education programs for adults. The author starts out with a brief review of health education down through the ages, finding little prior to Chadwick and Shattuck in the nineteenth century. Approaching the modern picture he gives a general outline of educational influences in the community and then proceeds to discuss specific organizations engaged in health education, including the American Public Health Association, the American Medical Association, the National Organization for Public Health Nursing and the voluntary health agencies in such fields as of tuberculosis and mental hygiene. Attention is given to the Red Cross, the Maternity Center Association of New York, the New York Academy of Medicine and other community groups. Much attention is devoted to health centers, as exemplified in the health districts of Greater New York, and to health departments as educators. The book is an excellent and comprehensive survey of the health education situation in the United States today. It is obviously intended as an objective and frankly critical book. To none of the organizations mentioned does the author give unmixed praise. He attempts to see weaknesses as well as merits in the programs of health education put forward by doctors through the American Medical Association, public health workers through the American Public Health Association, nurses through the National Organization for Public Health Nursing, and other groups through their respective special organizations. The medical reader will not agree with all the author's criticisms of the American Medical Association, but he will be compelled to recognize that the author, even when mistaken, has obviously made an effort to present his honest opinion. That this is not more favorable to organized medicine may be due to the fact that he has accepted, as have many other writers, statements from sources which were formerly authentic but from which in recent years have emanated some so-called studies of doubtful authenticity.

Carbon Monoxide Asphyxia. By Cecil K. Drinker, M.D., D.Sc., Professor of Physiology and Dean, School of Public Health, Harvard University, Boston. Cloth. Price, $4.50. Pp. 276, with 40 illustrations. New York, Toronto & London: Oxford University Press, 1938.

The hazard of carbon monoxide asphyxia is considerable in many important industries. Some 40,000 people die each year of this and related causes. During the past few years there have been extensive studies on the subject, and the bibliography included in this volume lists hundreds of references. After considering the physiology and biochemistry of carbon monoxide asphyxia, the author takes up acute poisoning and the problem of the after-effects, next the determination of what constitutes harmful exposure and then the statistics, the pathology and the treatment. Final chapters are concerned with technical methods dealing with the detection and determination of carbon monoxide in the air and in the body. There are an extensive bibliography and both author and subject indexes as well as forty illustrations and twenty-one tables supplying important information and data. The chapter on analytic methods was prepared by Dr. Julius Sendroy Jr. Certainly it is the most reliable and concentrated work on the subject thus far available.

Industrial Hygiene: A Handbook of Hygiene and Toxicology for Engineers and Plant Managers. By Laurence B. Chenoweth, A.B., M.D., and Willard Machle, B.S., M.D. With a foreword by Herman Schneider, Sc.D., LL.D. Cloth. Price, $2. Pp. 235, with 104 illustrations. New York: F. S. Crofts & Co., 1938.

This volume has been particularly designed to acquaint engineers and plant managers with the advantages accruing to employer and employee alike of a planned approach to injury and disease control in industry. As such it emphasizes primarily the importance of prevention and early emergency treatment. The authors have succeeded well enough to merit a wider audience, for in spite of its limitations in scope this book could be read with profit by the practitioner who needs an introduction to industrial problems which he meets only occasionally.

Cáncer laríngeo: Su tratamiento quirúrgico. Por el Dr. Ricardo H. Bisi, médico del Servicio de oto-rino-laringología de los Hospitales Nacional de Clínicas y Alvear. Paper. Pp. 355, with 101 illustrations. Buenos Aires: Librería y Editorial "El Ateneo," 1938.

This is one of the most important books published on the subject of malignant disease. It derives particular importance from two clinical facts, namely that cancer of the larynx is on the increase and that it is a curable disease if diagnosed early. In conformity with the latest thought on the subject the importance of roentgenologic studies in the delineation of cancer of the larynx is emphasized. Excellent lateral roentgenograms and schematic interpretations of Malenchini, Carminati and Leroux-Robert are well presented. Frontal tomographs by the technic of Felix Leborgne illustrate the importance of this method of x-ray study of the larynx. Irradiation as a means of treatment is not considered; as stated in the title, the book is concerned only with surgical treatment. The author does not regard histologic grading as of any importance in planning treatment. Recurrence he has found to depend on the possibility of complete operative extirpation according to location and stage rather than on degrees of malignant involvement as shown by histologic type. The surgical technic is based on the large clinical experience of the author and of his father, Dr. Humberto Bisi, to whom the book is dedicated. Preliminary tracheotomy is avoided whenever possible. Anesthesia by local and regional means is preferred. The steps of all surgical procedures are clearly given in detail. The author favors and gives the technic of the most radical extirpations of cancer of the larynx, pharynx, tongue, cervical esophagus and the lymphatic metastases. If necessary to get all of the latter the anterior cervical muscles, including the sternomastoids, are extirpated. The book is invaluable to all surgeons who are called on to deal with cancer of the larynx.

Soviet Samples: Diary of an American Physiologist. By Percy M. Dawson, M.D. Paper. Price, $4.25. Pp. 568. Ann Arbor, Michigan: Edwards Brothers, Inc., 1938.

This book is printed by the lithoprint technic, which copies the typewritten page. It represents the diary of the author and a number of his theories of publication, including simplified spelling and abbreviations. These do not add to the ease of perusal. For those who will take the necessary time to read this work, and it is hard to take in large doses, there is a great deal of information about conditions in Russia. There is also a vast amount of irrelevant and unnecessary information, which serves little useful purpose. Occasionally the simplified spelling gives an Artemus Ward impression. For example the sentence

> I enquired if in putting up tomatoes their vitamins ar conserved & was told that they ar

and also the paragraph

> Thruout the inspection the doctor wd. say "Now this is a brite & airy room" & make similar comments, & when we returnd to her offs, she sat by an open window where the wind waved her hair and fluttered the papers on her desk. She believs that it wil not be long before there is a universal demand for good ventilation.

A Treatise on the Surgical Technique of Otorhinolaryngology. By Georges Portmann, Professor of Otorhinolaryngology at the Medical School of the University of Bordeaux. Collaborators: H. Retrouvey, J. Despons, P. Leduc and G. Martinaud, Attending Clinicians of the Otorhinolaryngology Department of the School of Medicine of the University of Bordeaux. Translation by Pierre Viole, M.D., Associate Clinical Professor of Surgery in the Department of Otorhinolaryngology of the University of Southern California School of Medicine, Los Angeles. Cloth. Price, $12.50. Pp. 675, with 476 illustrations. Baltimore: William Wood & Company, 1939.

The author is well known in this country; he has been the guest of learned societies here and is highly respected as one of the leaders in his field on the continent. This work represents his personal experience with operative surgery. Under the circumstances, it is not strange that some of the interventions practiced by him are not the vogue in this country and that some of the procedures used here are not dwelt on. Nevertheless the volume has great value, because it represents the experience of a seasoned operator. What he has set out to do has been done exceedingly well. Each operation is discussed from beginning to end, by way of text, photographs and draw-

ings. Preoperative and postoperative measures are considered as well. The author has no intent to teach technic by way of a book, but the printed page here does give in a superlative manner an insight into the principles of operative surgery of the ear, nose and throat as practiced by an accomplished exponent.

Röntgenatlas der Erkrankungen des Herzens und der Gefässe: Ein Leitfaden für Ärzte. Von Dr. Walter Brednow, a. o. Professor für innere Medizin und Röntgenologie, Oberarzt der Medizinischen Universitäts-Klinik Göttingen. Second edition. Paper. Pp. 161, with 90 illustrations. Berlin & Vienna: Urban & Schwarzenberg, 1939.

The second edition is not essentially different in general plan from the first. New illustrations enrich the beautiful collection of cardiovascular roentgenograms, which are often clarified by photographs of plaster models. Roentgenkymography of the heart is described, but it is the opinion of the author that this new technical advance, while promising real help in cardiac diagnosis when it is fully developed, has not yet achieved a place in the armamentarium of the practicing physician. The roentgenograms are clearly reproduced and should be of great value to students and teachers of cardiography.

The History of Bacteriology. By William Bulloch, M.D., F.R.S. University of London, Heath Clark Lectures, 1936, delivered at the London School of Hygiene and Tropical Medicine. Cloth. Price, $3.75. Pp. 422, with 52 illustrations, including 16 plates. New York, Toronto & London: Oxford University Press, 1938.

This volume includes the Heath Clark lectures delivered at the London School of Hygiene and Tropical Medicine in 1936. Its author prepared "The History of Bacteriology," which appeared in "The System of Bacteriology" published some years ago by the Medical Research Council of Great Britain. In taking up the subject the author considers first ancient doctrines of the nature of contagion; then follows the evolutionary development of our knowledge of bacteriology to the period of classification of bacteria and the history of doctrines of immunity. There are also a bibliography and some excellent biographic notes concerning early workers in the field of bacteriology. These are quoted from a variety of literary sources throughout the world. The book is beautifully printed, handsomely illustrated and indispensable to all who are concerned with the history of the science that it covers.

The Chemistry of Natural Immunity. By William Frederick Koch, Ph.D., M.D. Cloth. Price, $2. Pp. 199, with illustrations. Boston: Christopher Publishing House, 1938.

The author of this book for years has promoted a remedy for the treatment of cancer which has been a not infrequent subject of adverse reports in THE JOURNAL. The first portion of the book is an attempt to formulate a biochemical explanation of observations made by various scientific workers in the field of physiology and pathology. The second portion contains brief histories of cases in which cancer and many other conditions, according to the author, have been amenable to "Glyoxylide." If Dr. Koch were successful in treating cancer (which had been established as such beyond all doubt by repeated diagnoses), his clinic by this time would be overrun by thousands of patients. If Koch's solution is truly the chemical he describes, it is obviously so unstable that it would probably not be the same substance when it reached far distant points and the container was opened for injection. Case histories without adequate explanation of when and where or by whom the condition was diagnosed, and where and when and by whom a cure was pronounced, lack the essential elements of scientific evidence.

Clinical Studies in Psychopathology: A Contribution to the Aetiology of Neurotic Illness. By Henry V. Dicks, M.A., M.D., M.R.C.P., Assistant Medical Director, The Tavistock Clinic, London. Cloth. Price, $4.75. Pp. 248. Baltimore: William Wood & Company, 1939.

This volume includes a series of postgraduate lectures at the Tavistock Clinic. It does not provide any originality but instead attempts to reflect the author's opinions and views of various psychoanalytic concepts. The author has borrowed freely from Freud, Jung and Adler. Presenting a limited number of cases, he discusses the anxiety states, neurasthenia, obsessional states, hysteria and various sexual abnormalities, concluding with drug addiction. The author inclines toward the idea that the future of psychiatry will be determined by the trend toward psychosomatic considerations.

The Nobel Prizes and Their Founder Alfred Nobel. By Fritz Henriksson. Paper. Price, $1. Pp. 59, with 9 illustrations. Stockholm: Alb. Bonniers Boktryckeri, 1938.

This pamphlet makes available all the necessary factual data concerning the Nobel prizes, the manner in which they were established and the method of award and a complete list of those who had received the prizes up to the date of publication. There are also some thirty pages of information relative to Alfred Nobel and his family. It is the authentic publication for those wishing information in this field.

It's More Fun to Be Thin. By Jean E. Owen. Cloth. Price, $2. Pp. 182, with illustrations. Boston: Marshall Jones Company, 1939.

This book is a badly overdone attempt to sugarcoat education about reducing. It consists mostly of forced humor with a small amount of information. Of 182 pages, only seven are devoted to an actual week's reducing diet, and there are a few scattered menus in other parts of the book. The diet recommended is deficient in protein, deficient in carbohydrate and almost totally lacking in dairy products, with the exception of a small allowance of butter. In the entire collection of sample menus for a week, milk is not advised. Great emphasis is placed on using rye bread instead of white, when the most elementary knowledge of caloric values should have taught the author that rye bread has practically the same caloric value as white. In the presence of many better books and pamphlets, this one can hardly be recommended.

Bacteria: The Smallest of Living Organisms (1872). By Dr. Ferdinand Cohn. Translated by Charles E. Dolley (1881). Introduction by Morris C. Leikind. Boards. Price, $1. Pp. 44, with 2 illustrations. Baltimore: Johns Hopkins Press, 1939.

This reprint from the Bulletin of the History of Medicine makes available one of the most important essays in the history of bacteriology. First published in 1872, it appeared when Pasteur was in the midst of his studies on fermentation and spontaneous generation and when Koch was still an unknown physician.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Chiropractic: Scope of Chiropractic in California; "Chiropractic as Taught in Chiropractic Schools" Construed.—The defendant was a chiropractor licensed under the provisions of the chiropractic initiative act adopted in California in 1922. He was convicted of a violation of the medical practice act, now forming a part of the Business and Professions Code of California, and appealed to the appellate department, superior court, Los Angeles County, California.

It was not necessary, the court said, for the complaint to negative the possession of a chiropractic license by the defendant. The operative effect of the 1922 chiropractic initiative was the same as that of an exception or limiting proviso placed in the same act with a prohibition which is not a part of the definition of the offense. It is the rule in such matters that it is not necessary in a criminal charge to negative such an exception or proviso.

Prior to the 1922 chiropractic initiative, chiropractors in California could by virtue of a provision in the medical practice act obtain from the board of medical examiners licenses to practice as drugless practitioners, without the use of drugs or medical preparations and without severing or penetrating any of the tissues of human beings, except the severing of the umbilical cord. The 1922 chiropractic initiative created a board of chiropractic examiners and provided that a license issued by the board authorized the holder—

> to practice chiropractic in the State of California as taught in chiropractic schools or colleges; and, also, to use all necessary mechanical, and hygienic and sanitary measures incident to the care of the body, but shall not authorize the practice of medicine, surgery, osteopathy, dentistry or optometry, nor the use of any drug or medicine now or hereafter included in materia medica.

The proponents of the 1922 initiative, the court pointed out, then argued that their complaint was not against the limited

form of license under which they practiced but against the unfair administration of the medical practice act as it applied to chiropractors. They assured the voters that the proposed initiative prohibited the use of "drugs, surgery or the practice of obstetrics by chiropractors." This argument, the court said, while not conclusive, may be considered as an aid in interpreting the initiative. The decision of the court in this case does not indicate, except by inference, specifically the type of practice in which the defendant engaged. It does discuss exhaustively the scope of chiropractic in California.

The court disagreed with the defendant's contention that he was authorized to practice any method of healing that is taught in chiropractic schools and colleges. The practice authorized by the initiative, the court observed, must be "chiropractic," and it must also be "as taught in chiropractic colleges." Neither of these expressions can rule the meaning of the initiative to the exclusion of the other. The court quoted from various sources to show that the term "chiropractic," at the time the initiative was adopted in 1922, meant a system of healing that treated disease by manipulation by hand of the spinal column. This general consensus of definitions, the court continued, showed what was meant by the term "chiropractic" when used in the initiative act, for the words of an act must be taken in the sense in which they were understood at the time when the act was enacted. Nor, the court observed, has the accepted definition of the word since changed. The effect of the words "as taught in chiropractic schools or colleges" is not to set at large the signification of "chiropractic," leaving the schools and colleges to fix on it any meaning they choose. The scope of chiropractic being well known, the schools and colleges, so far as the authorization of the chiropractor's license is concerned, must stay within its boundaries. They cannot exceed or enlarge them. The trial court, in the opinion of the appellate court, correctly instructed the jury as follows:

> It is thus seen that the authority granted to a chiropractor to practice the arts taught in chiropractic schools and colleges is limited by the restriction that such practice may not invade the field of medicine or surgery, nor may the chiropractor use any drug or medicine included in materia medica, even though certain phases of the practice of medicine or surgery or the use of such drugs or medicines may have been taught in chiropractic schools or colleges. In other words, the chiropractor is limited to the practice of chiropractic and the use of mechanical hygienic and sanitary measures incident to the care of the body, which do not invade the field of medicine and surgery, irrespective of whether or not additional phases of the healing art, including medicine and surgery or the use of drugs, may have been taught in chiropractic schools or colleges.

The defendant contended that the limiting language found in the chiropractic initiative act that licenses issued thereunder shall not authorize the practice of medicine, surgery, osteopathy, dentistry or optometry, nor the use of any drug or medicine now or hereafter included in materia medica, was purely surplusage and should be wholly disregarded. This was certainly not the position taken by the proponents of the 1922 initiative, the court pointed out, nor did the people have any such intent in adopting the act, if they paid any attention to the positive assurance given them by the proponents, as the court supposed they did. The defendant argued that chiropractic is merely a phase of medicine and surgery, and since the license provided by the initiative act expressly permits the practice of chiropractic, the limitation was repugnant to the grant and must be ignored. But, the court pointed out, all the parts of an act must be considered together and meaning and effect must be given, if possible, to each and every part. The initiative must, then, mean something by its provision that a chiropractic license shall not authorize the practice of medicine or surgery. Obviously, it does not mean to prohibit what has just been expressly authorized; that is, the practice of chiropractic. In view of the fact that the proponents of the initiative declared in 1922 that "the teachings and practice of chiropractic are admittedly different from those of medicine," that there was no objection to the scope of the license which a chiropractor could obtain under the medical practice act and that under the proposed initiative chiropractors could not use drugs or surgery, the court in the present case concluded that the words "medicine" and "surgery" as used in the initiative act were intended to continue as to chiropractors the limitations imposed on drugless healers by the medical practice act; that is, to deny them the use of drugs and medical preparations and the severing or penetrating of the tissues of human beings.

The defendant objected to an instruction given by the trial court that excluded chiropractors from the use of proprietary medicines. But, the appellate court said, that instruction was in accordance with the language of the initiative itself, which makes no exception of medicines that are "proprietary." The act declares that persons licensed under it shall not practice medicine, a practice which certainly includes the use and prescribing of medicines in whatever form or combination they may be prepared or sold. It also prohibits the use by licensees of "any drug or medicine now or hereafter included in materia medica." The term "materia medica" is defined in Webster's New International Dictionary, 1926 edition, as follows: "1. Material or substance used in the composition of remedies: a general term for all substances used as curative agents in medicine. 2. That branch of medical science which treats of the nature and properties of all the substances employed for the cure of diseases; one of the two branches of pharmacology." For the present purpose, the court said, it makes little difference which of these two meanings is to be given the term as used in the chiropractic initiative. Taking it in either sense, the effect of the prohibition cannot be evaded by mixing one of the included drugs or medicine with something else and calling it, whether rightly or wrongly, a proprietary medicine.

The appellate court could find no error in the record, and the judgment of conviction was affirmed.—*People v. Fowler (Calif.), 84 P. (2d) 326.*

Society Proceedings

COMING MEETINGS

American Academy of Ophthalmology and Oto-Laryngology, Chicago, Oct. 8-13. Dr. William P. Wherry, 107 South 17th St., Omaha, Secretary.

American Association for the Study of Neoplastic Diseases, Washington, D. C., Sept. 7-9. Dr. Eugene R. Whitmore, 2139 Wyoming Ave. N.W., Washington, D. C., Secretary.

American Association of Obstetricians, Gynecologists and Abdominal Surgeons, Hot Springs, Va., Sept. 7-9. Dr. James R. Bloss, 418 Eleventh St., Huntington, W. Va., Secretary.

American Association of Railway Surgeons, Chicago, Sept. 11-13. Dr. Daniel B. Moss, 547 West Jackson Blvd., Chicago, Secretary.

American Clinical and Climatological Association, Saranac Lake, N. Y., Oct. 9-11. Dr. Francis M. Rackemann, 263 Beacon St., Boston, Secretary.

American Congress of Physical Therapy, New York, Sept. 5-8. Dr. Richard Kovacs, 2 East 88th St., New York, Secretary.

American Roentgen Ray Society, Chicago, Sept. 19-22. Dr. Carleton B. Peirce, Royal Victoria Hospital, Montreal, Canada, Secretary.

American Society of Anesthetists, New York, Oct. 12. Dr. Paul M. Wood, 745 Fifth Ave., New York, Secretary.

Clinical Orthopaedic Society, Little Rock, Ark., and Oklahoma City, Oct. 13-14. Dr. H. Earle Conwell, 215 Medical Arts Bldg., Birmingham, Ala., Secretary.

Colorado State Medical Society, Colorado Springs, Oct. 4-7. Mr. Harvey T. Sethman, 537 Republic Bldg., Denver, Executive Secretary.

Idaho State Medical Association, Boise, Aug. 23-26. Dr. J. N. Davis, 204 Fourth Avenue East, Twin Falls, Secretary.

Indiana State Medical Association, Fort Wayne, Oct. 10-12. Mr. Thomas A. Hendricks, 23 East Ohio St., Indianapolis, Executive Secretary.

Kentucky State Medical Association, Bowling Green, Sept. 11-14. Dr. Arthur T. McCormack, 620 South Third St., Louisville, Secretary.

Michigan State Medical Society, Grand Rapids, Sept. 18-22. Dr. L. Fernald Foster, 311 Center Ave., Bay City, Secretary.

Mississippi Valley Medical Society, Burlington, Iowa, Sept. 27-29. Dr. Harold Swanke, 218 Maine St., Quincy, Ill., Secretary.

Nevada State Medical Association, Reno, Sept. 22-23. Dr. Horace J. Brown, 120 North Virginia St., Reno, Secretary.

North Pacific Society of Internal Medicine, Vancouver, B. C., Sept. 1-2. Dr. Lester J. Palmer, 1115 Terry Ave., Seattle, Secretary.

Oregon State Medical Society, Gearhart, Sept. 6-9. Dr. M. L. Bridgeman, 1020 S.W. Taylor St., Portland, Secretary.

Pennsylvania, Medical Society of the State of, Pittsburgh, Oct. 2-5. Dr. Walter F. Donaldson, 500 Penn Ave., Pittsburgh, Secretary.

Rocky Mountain Medical Conference, Salt Lake City, Sept. 5-7. Mr. W. H. Tibbals, 610 McIntyre Bldg., Salt Lake City, Secretary.

Utah State Medical Association, Salt Lake City, Sept. 5-7. Dr. D. G. Edmunds, 610 McIntyre Bldg., Salt Lake City, Secretary.

Virginia, Medical Society of, Richmond, Oct. 3-5. Miss Agnes V. Edwards, 1200 East Clay St., Richmond, Secretary.

Washington State Association, Spokane, Aug. 28-30. Dr. V. W. Spickard, 1305 Fourth Ave., Seattle, Secretary.

Wisconsin, State Medical Society of, Milwaukee, Sept. 13-15. Mr. J. G. Crownhart, 119 East Washington Ave., Madison, Secretary.

Wyoming State Medical Society, Salt Lake City, Utah, Sept. 5-7. Dr. M. C. Keith, 156 South Center St., Casper, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1929 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Heart Journal, St. Louis

17:643-780 (June) 1939

Sounds Produced by Friction of Normal Serosa. T. Ortiz, Mexico City, Mexico.—p. 643.
Electrocardiographic Response to Gradually Induced Oxygen Deficiency: I. Response of Normal Hearts in Various Age Groups. S. H. May, New York.—p. 655.
*Significance of Rheumatic Activity in Chronic Rheumatic Heart Disease: Part II. Method of Classification. I. R. Juster, Glens Falls, N. Y. —p. 669.
Right Ventricular Hypertrophy and Congestive Failure in Chronic Pulmonary Disease. D. E. Griggs, C. B. Coggin and N. Evans, Los Angeles.—p. 681.
Pharmacology of Cheyne-Stokes Respiration. M. H. Nathanson and J. P. Fitzgibbon, Los Angeles.—p. 691.
Electrocardiographic Study of Twins. N. B. Wise, Durham, N. C.; W. J. Comeau and P. D. White, Boston.—p. 701.
*Problem of Angina Pectoris in the Negro. M. M. Weiss, Louisville, Ky. —p. 711.
Absence of Pulse in Vessels of Upper Extremities and Neck in Aneurysm of Aortic Arch. E. Maurer, Cincinnati.—p. 716.
Electrocardiographic Changes Induced by Taking of Food: Preliminary Report. M. Gardberg and Jenny Olsen, New Orleans.—p. 725.

Significance of Rheumatic Activity.—The method of separating patients with active rheumatic heart disease into classes of increasing degrees of activity that Juster outlines is based on the percentage of abnormal leukocyte counts in each patient. Patients placed in the inactive group comprise those whose counts are within the normal range. Beginning with the inactive group and proceeding through the groups of first, second and third degree activity there is a progressive increase in the range and in the average leukocyte counts. The average age of the patients in the inactive and first degree groups is higher than that in the second and third. Rheumatic activity is more intense in patients in the third degree group and least in those in the inactive group. The activity of the rheumatic process is least during the summer of each year. There are symptomless periods in patients with third degree activity. In patients in whom the deviations from a normal leukocyte count (less than 9,000 cells) are 10 per cent or less the disease is considered inactive; the others are divided into three groups, depending on the amount of the deviation. The degree of abnormality depends on the percentage of abnormal to the total number of counts. For example, a patient exhibiting abnormal leukocyte counts to the extent of 50 per cent of his total number of counts would be classified as second degree.

Angina Pectoris in the Negro.—Weiss studied the records of 324 ambulant indigent Negroes with essential hypertension, including only adults more than 20 years of age, who were admitted consecutively to the outpatient department of the Louisville City Hospital, and compared them with 246 similar white patients admitted to the clinic during the same period. A history of angina pectoris was obtained in nine, or 2.8 per cent, of the Negroes and in twelve, or 4.8 per cent, of the white patients. Thus the incidence was low in both races. The author believes that explanations of the rarity of angina pectoris in the Negro are inadequate because they do not take into account the fact that there is a similar low incidence in white patients who are of the same intellectual level. A lack of ability to describe and interpret fully the sensation of cardiac pain can entirely explain the infrequency with which the syndrome is encountered in the Negro. This is the same explanation offered by Hamman to account for the social differences in the incidence of angina pectoris. The most satisfactory histories of angina were obtained from patients who were above the intellectual level of the average patient attending the outpatient department. The economic depression necessitated their admission to a free clinic. While a disturbed emotional state can precipitate an anginal attack, a more than moronic intelligence is required to describe that attack. A difference in nervous system sensitivity seems a plausible explanation. Both white and Negro patients who attend the same clinic cannot have a low threshold for those stimuli, such as effort, cold, mental strain and excitement, which precipitate an anginal attack in an intelligent white person. No racial difference in the incidence of advanced degrees of coronary sclerosis or myocardial infarction in 177 Negro and 178 white persons with essential hypertension was found at necropsy.

American Journal of Cancer, New York

38:179-342 (June) 1939

Carcinoma Cutis. E. Poppe, Oslo, Norway.—p. 179.
Aspiration Biopsy of Tumors of Liver: Report of Nineteen Cases. J. S. Binkley, New York.—p. 193.
Studies in Carcinogenesis: VI. Hydrocarbon-Cholesterol Pellets in Albino Mice. M. J. Shear and E. Lorenz, Boston.—p. 201.
Id.: VII. Compounds Related to 3:4-Benzpyrene. M. J. Shear, with technical assistance of A. Perrault, Boston.—p. 211.
Experimental Zinc Teratomas of Testis and Their Transplantation: Preliminary Communication. V. Anissimova, Smolensk, Soviet Russia.—p. 229.
Experimental Teratoma Testis in Fowl Produced by Injections of Zinc Sulfate Solution: Preliminary Communication. L. I. Falin and K. E. Gromsewa, Smolensk, Soviet Russia.—p. 233.
Sarcoma of Spleen: Report of Five Cases. D. M. Grayzel, Brooklyn. —p. 237.
Melanoma of Urethra. H. E. Shih, Peiping, China.—p. 243.
*Hormone Therapy of Male Breast Hypertrophy. W. J. Hoffman, New York.—p. 247.
Influence of Walker Carcinosarcoma on Concentration of Ascorbic Acid in Various Endocrines and Organs. B. Sure, R. M. Theis and R. T. Harrelson, with assistance of L. Farber.—p. 252.
Effect of Prolonged Administration of 1:2:5:6-Dibenzanthracene on Reticulo-Endothelial System of Rabbits. T. Csato, C. Wetzler-Ligeti and B. P. Wiesner, London, England.—p. 257.
Development of Malignancy in Animals and Changes in Restropic Activity of Blood. T. Csato, C. Wetzler-Ligeti and B. P. Wiesner, London, England.—p. 262.
Study of Behavior of Di-(Hydroxymethyl)-Peroxide in Vivo and in Vitro and Its Effect on Catalase Activity of Blood. J. White and M. C. Winternitz, New Haven, Conn.—p. 269.
Cytology of Tumor Cell in Rous Chicken Sarcoma. M. Levine, New York.—p. 276.

Hormone Therapy of Male Breast Hypertrophy.—In view of the possibility that hypertrophy of the male breast might be due to a deficiency of the male sex hormone, Hoffman in 1935 treated six patients by injections of gonadotropic substance. Injections were given at weekly intervals over periods ranging from two to ten months. No consistent results were obtained, and the experiment was abandoned after one year. In 1937 an experiment was begun to determine the effect of injections of male sex hormone into thirty-one boys or men with unilateral or bilateral hypertrophy of the breast. Testosterone acetate and testosterone propionate were the preparations employed. The youngest patient was 11 and the oldest 73 years of age. Twenty-eight of the thirty-one patients, with various degrees of hypertrophy, received injections twice a week. The remaining three patients, who were the youngest in the group, with the smallest masses of mammary tissue and a history of beginning regression, were excluded from the experiment. The dosage employed in the first six patients was 5 mg. of testosterone acetate twice a week. After six months the dosage in subsequent cases was increased to 25 mg. twice a week, when it became evident that the smaller dosage produced no testicular damage or arrest of the normal changes of puberty. Among the twenty-eight patients who received injections of testosterone there was complete regression of the mass in fourteen, while the degree of regression exceeded 75 per cent in nine. The elapsed time before complete regression occurred varied from two to five months, and the number of injections averaged twenty-eight. In general the response was relatively rapid in the beginning. It was not unusual to note a regression of 50 per cent during the first four weeks of treatment. After the mass had been reduced to a diameter of 1 or 2 cm. the rate of regression was much slower. Sometimes this persistent residual nodule would remain unaffected for many weeks. Then, if all injections were stopped, it might disappear within a month. There was a complete failure to reduce the size of the mammary mass in two cases. In both instances the size of the breast increased despite treatment over a long period. In at least two instances there was a recurrence of the condition, which, how-

ever, responded to a second course of treatment. A mass developed in the opposite breast in one other patient while the first mass was regressing. This second mass regressed two months later, after a series of sixteen injections.

American Journal of Medical Jurisprudence, Boston

2: 203-242 (May-June) 1939

Evaluation of Partial and Permanent Disability Following Trauma. E. D. McBride, Oklahoma City.—p. 203.
Utilization of Agents in Practice of Medicine and Surgery. C. Scheffel, Miami, Fla.—p. 207.
Teaching of Legal Medicine. H. M. Taylor and J. S. Bradway, Durham, N. C.—p. 210.
Coroner's Office in Louisiana and Medicolegal Duties in General. W. P. Butler, Shreveport, La.—p. 214.
Crime and Justice. S. Glueck, Boston.—p. 222.

American Journal of Public Health, New York

29: 583-700 (June) 1939. Partial Index

*Results Obtained in Extensive Tuberculosis Case Finding Program in a Large City. B. H. Douglas and G. E. Harmon, Detroit.—p. 583.
*Production of Mottled Enamel Halted by Change in Common Water Supply. H. T. Dean, Washington, D. C., and F. S. McKay, New York.—p. 590.
In-Service Training for Doctors and Nurses. Leona Baumgartner, New York.—p. 597.
Precipitative Method for Titration of Tetanus Toxin and Antitoxin. R. L. Libby and J. N. Adam, Pearl River, N. Y.—p. 615.
The National Health Program: How Far? How Fast? A. Wolman, Baltimore.—p. 628.
Preliminary Observations on Epidemiology of Mental Disease. A. W. Freeman and B. M. Cohen, Baltimore.—p. 633.
Integration of Health Department Records. Marjorie T. Bellows and G. H. Ramsey, White Plains, N. Y.—p. 636.
Industrial Medical Department Organization. J. J. Prendergast, Detroit.—p. 641.
Practical Procedures and Limitations in Present Day Smoke Abatement. H. B. Meller, Pittsburgh.—p. 645.
Simple Tellurite Medium for Bacillus Diphtheriae. Nell Peterson Hall, Champaign, Ill.—p. 664.

Tuberculosis Case Finding Program.—Douglas and Harmon present the data from the first eighteen months of activities in finding cases of tuberculosis under the medical participation plan of Detroit. In summary they state that: 1. Of the 114,831 tuberculin tests reported by 705 individual physicians, 27.8 per cent were considered to be positive. 2. Sixty-four physicians reported 27,084 x-ray examinations. 3. These tests and examinations resulted in the finding of 633 verified cases of active tuberculosis. 4. Approximately 2 per cent of the positive tuberculin tests related to persons found to have active tuberculosis. This percentage was independent of age and residence. 5. Of the tuberculin tests stated by the physicians to relate to contacts, 40.9 per cent were positive. Of those relating to suspects, 32.5 per cent were positive and 26.5 per cent of those not related to either of these classes were positive. 6. The percentage of positive tests increased with age, reaching a maximum of 50 per cent at about 50 years of age. 7. Of the cases of the adult type of active tuberculosis discovered, 29.9 per cent were defined as being in a minimal stage. 8. If the adult type of active tuberculosis is considered, the percentage of minimal cases declined with increasing age. 9. Some evidence was obtained which indicates that within the poor district there was no marked difference from one subdivision to another in the incidence of tuberculosis as judged by the tuberculin test.

Mottled Enamel and Water Supply.—Dean and McKay studied the effect, in three of the 375 known areas in twenty-six states, of changing the common water supply from one containing enough fluorides to produce mottled enamel to one practically free from such contamination. Each community presented the indispensable conditions of a susceptible population (children the crowns of whose permanent teeth were calcifying) using the "new" water supply and a sufficient lapse in time (from eight to ten years) for a study of the consequent differences. In Oakley, Idaho, the incidence of mottled enamel in seventy-eight children was 100 per cent before the change of water. Approximately seven and one-half years after the change in the common water supply, Oakley was resurveyed and the twenty-four children born since the change in the water supply showed normal calcification in those permanent teeth which at that time had erupted. Sixty of the sixty-two children of continuous residence at Bauxite, Ark., examined showed mottled enamel, generally of a severe type. Although the homes of the two children classified as normal were piped for the city water, it appears that it was used only occasionally for domestic purposes. A resurvey at Bauxite ten years after a change of water supply showed that, of the forty-five children born since the change, only two showed even the mildest form of mottled enamel. At Andover, S. D., the 800 foot artesian well supplying the city water failed and the residents resorted to a well 22 feet deep. An examination of the school children ten years after this enforced change showed that the fourteen children from 6 to 10 years of age presented normal calcification of the permanent teeth, while previous to this mottled enamel was endemic.

American Review of Tuberculosis, New York

40: 1-130 (July) 1939

Physiologic Mechanism of Expectoration. H. C. Ballon, Montreal.—p. 1.
Extrapleural Pneumothorax: P. Geary, Plainfield, N. J.—p. 9.
*Phrenic Nerve Interruption: Its Place in Collapse Therapy Program of Pulmonary Tuberculosis. J. W. Cutler, Philadelphia.—p. 26.
*Reestablishment of Pneumothorax. A. Rest, Spivak, Colo.—p. 55.
Fatality Rates in Pulmonary Tuberculosis: Their Trend Based on Roentgenologic Studies of 8,000 Patients. H. L. Sampson, Trudeau, N. Y.—p. 71.
Laryngeal Tuberculosis. W. H. Weidman and H. B. Campbell, Norwich, Conn.—p. 85.
Preservation of Tubercle Bacilli. M. L. Cohn, Denver.—p. 99.
Tubercle Bacilli Suspended in Gastric Mucin: Their Pathogenicity for Guinea Pigs. M. A. Mills and Charlotte A. Colwell, Chicago.—p. 109.

Phrenic Nerve Interruption.—Cutler presents the results of phrenic nerve surgery in a consecutive series of 122 private white adults under care for pulmonary tuberculosis for varying periods during the last nine years and on whom one or another type of phrenic nerve interruption was performed. In 106 patients the operation was carried out as an independent collapse measure. In the remaining sixteen patients it was employed in a supplementary capacity. These patients, the author believes, represent a fair cross section of the type of tuberculous patient in whom phrenic nerve surgery has been used, as many stages and varieties of tuberculosis were present. In sixty the operation was on the left side and in sixty-two on the right. In sixty-five the phrenic nerve interruption was temporary and in fifty-seven it was permanent. The intelligence, cooperation and morale of these patients were on a higher plane than one usually encounters in clinic patients. By limiting the study to such a selected group the results represent the more favorable side of phrenic nerve paralysis. More than 50 per cent of the patients were under observation for from two to eight years. The experience gained from this series, considered in the light of a critical review of the literature, leads the author to the following conclusions: 1. The value of phrenic nerve interruption will in large measure depend on the type of case selected for the operation. Little or no good will follow the operation in many unselected cases. In from 3 to 5 per cent it may actually do harm. 2. As an independent collapse measure, the operation should not be undertaken in the presence of tuberculous lesions of the following character (unsuitable cases): apical cavities 3 or more cm. in diameter, large cavities with walls adherent in the axillary region, pneumonic consolidations, dense fibrotic lesions with embedded cavities and acute infiltrations. 3. Cases other than these may be considered "apparently suitable" in that good results will follow operation in a significant percentage of cases. This "apparently suitable" group makes up about 70 per cent of tuberculous cases. 4. No benefit will ensue from the operation, when used as the sole collapse procedure, in more than half of the cases considered "apparently suitable." 5. In approximately one fourth of the "apparently suitable" cases, improvement will follow as a result of the operation. In about 40 per cent of such cases the initial improvement in the lung subjected to operation was followed in time by serious relapse, and in 60 per cent some other form of collapse therapy was necessary to attain maximal stability of the lesion or closure of a cavity. 6. In only 20 per cent of the "apparently suitable" cases did the disease in the lung with the paralyzed diaphragm clear or undergo such stabilization that no further therapy was required. 7. There is no way of selecting this 20 per cent of patients from among the "apparently suitable" type, except through trial and error. Should the operation be unsuccessful, not only is valuable time lost, but the time lost may prove to be disastrous. 8. For these reasons, phrenic nerve interruption should not be carried out as a

choice therapy in patients in whom more certain collapse procedures can be instituted. 9. Both temporary and permanent phrenic nerve interruption have their place in collapse therapy. A temporary phrenic nerve interruption is indicated in an emergency and when other collapse measures, such as pneumothorax or thoracoplasty, are in prospect. A permanent phrenic nerve operation is indicated when the operation is carried out as the sole therapeutic measure in the attempt to cure the patient after other collapse procedures are considered unsuitable or are contraindicated. 10. The danger is not that too many phrenic nerve operations will be performed or that they will be undertaken in an indiscriminate and unthinking manner, but that the operation will be discarded. This would be unfortunate, for phrenic nerve interruption appears to have value in from 15 to 25 per cent of tuberculous patients. At times it may be the simplest means for saving a patient's life.

Reestablishment of Pneumothorax.—By incorporating the aid of some of the leading tuberculosis institutions of the country Rest collected 135 cases in which an attempt was made to reestablish pneumothorax. In fifty-two of these it was reestablished successfully. Of the fifty-two successful cases there were adhesions in forty, there were none in seven, and this was undetermined in five. The period of time for which pneumothorax was maintained before it was discontinued varied from less than one year in twenty-one cases to more than six years in one. Some of the reasons for discontinuing pneumothorax in these fifty-two cases were obliterative pleuritis, poor collapse, discontinued by patient, adequate collapse at the time and contralateral spread. The reasons for reestablishing the pneumothorax were that some of the patients had reactivation, inadequate collapse, an increase in symptoms, to replace effusion, positive sputum or hemoptyses. The author states that the reestablishment of pneumathorax is possible more often than was formerly believed and that it should always be tried when further compression is desired. The long duration of a pneumothorax and the interval after a pneumothorax was abandoned are no contraindications for reestablishment. Finally, reestablishment of pneumothorax, although possible, is far from a general attainment. Consequently, as pulmonary tuberculosis is characterized frequently by relapse, it seems plausible to continue pneumothorax indefinitely and to consider its abandonment with reluctance.

Archives of Dermatology and Syphilology, Chicago

40: 1-174 (July) 1939

*Treatment-Resistant Syphilis: Evaluation of Causative Factors in Eighteen Cases. W. Beckh and G. V. Kulchar, San Francisco.—p. 1.
Lichenoid Amyloidosis: Report of Two Cases Featuring Absence of Cutaneous Lesions Over Some of Crural Tributaries of Internal Saphenous Veins. E. W. Abramowitz and L. Isaak, New York.—p. 13.
*Iodocholeate: New Fungicidal Preparation: Preliminary Report. W. F. Lever, Boston.—p. 19.
Fixed Eruption and Stomatitis Due to Sulfanilamide. A. B. Loveman and F. A. Simon, Louisville, Ky.—p. 29.
Sarcoid of Boeck: Report of Case of Generalized Cutaneous Distribution and Pulmonary Involvement, with Clinical Cure with Tuberculin. S. Irgang, New York.—p. 35.
*The Laughlen Test in Diagnosis of Syphilis. W. F. Lever and W. K. Massie, Boston.—p. 45.
Unrectified X-Ray Machines for Dermatologic Use: Clinical Considerations. J. E. Ginsberg, Chicago, and R. S. Landauer, Highland Park, Ill.—p. 53.
Old Epidemics of Syphilis. T. Rosenthal, New York.—p. 59.
Keratoderma Climactericum (Haxthausen's Disease). L. C. Goldberg, Cincinnati—p. 67.
Third Generation Syphilis: Review of Literature and Report of Case. J. A. Brussel, Brentwood, N. Y.—p. 70.
Relation Between Pigmentation and Growth of Hair: Pigmentary Effects of Anthralin (Dihydroxyanthranol) in Two Cases of Alopecia Areata. M. H. Goodman, Baltimore.—p. 76.
Treatment of Pemphigus with Concentrated Viosterol. E. B. Tauber and G. E. Clarke, Cincinnati.—p. 82.

Treatment-Resistant Syphilis.—During the six years ended June 1, 1937, among the 694 patients with primary and secondary syphilis admitted to the syphilis clinic of the Stanford University School of Medicine, Beckh and Kulchar state that fifteen were resistant to treatment. They also include three other patients observed elsewhere. In all resistance occurred during therapy. The state of nutrition of all patients was fair or good. Of none was the syphilitic infection complicated by other disease or pregnancy. There was no unusual history of past illnesses. Three of the ten patients on whom such data are available used alcohol in large amounts. The period of observation varied from eleven to seventy-three months, the average being 32.3 months. After the appearance of resistance to treatment the patients were followed for from three to forty-seven months, an average of 19.4 months. All except one patient received heavy metal therapy either simultaneously or in alternation with the arsenic medication. The clinical manifestations of treatment resistance were variable and for the most part involved the skin and mucous membranes. The lesions were for the most part similar to those usually seen in early syphilis. Three of the eighteen patients were refractory to treatment from the beginning (primary treatment resistance). In two the initial lesions were resistant to treatment but eventually involuted, only to be followed by refractory recurrences (primary-secondary treatment resistance). The original lesions of the remaining thirteen patients responded normally to treatment, the clinical manifestations of resistance appearing subsequently (secondary treatment resistance). Treatment resistance first appeared during the simultaneous phase in all the thirteen patients who received combined therapy. Among the three patients receiving the alternating type of treatment resistance occurred first during arsphenamine medication in one; data as to the phase of treatment are not available for the other two. All, however, were subsequently refractory to both arsphenamine and bismuth medication. The single patient who received only neoarsphenamine was not given heavy metal therapy during the resistant state. One patient showed resistant lesions while receiving bismarsen and failed to respond to subsequent injections of iodobismitol with saligenin. It appears that, among the patients of the present series, specific drug fastness is not an important factor in treatment resistance. While negative Wassermann reactions in treatment-resistant syphilis are reputedly common, seronegativity was encountered but once among the eighteen patients. Conjugal treatment resistance has been cited as evidence for a treatment-refractory strain of Spirochaeta pallida. The infected sexual partners of four of the eighteen patients were examined. The response to treatment of all four was normal, and no evidence of the transmission of a treatment-resistant strain of Spirochaeta pallida could be found. The data on the effectiveness of various measures used in the treatment of resistant syphilis indicate that a change of drug is the most effective treatment for refractory syphilis, but, as this measure was used with greater frequency than others, no direct comparison can be made. Similarly, as only a few of these patients were treated with fever therapy and the measure was reserved for those who were refractory to other types of treatment, its relative effectiveness cannot be fully evaluated. However, the results do suggest, in accord with the experience of others, that continuation of the treatment used before the clinical appearance of resistance is a relatively ineffectual measure. From clinical and experimental data it seems likely that the more frequent occurrence of treatment resistance among the patients given "combined" therapy is due at least in part to prolonged underdosage with the arsphenamines. However, some as yet undefined intrinsic host factor may also play a part.

Iodocholeate.—Because iodocholeate proved itself superior to tincture of iodine in laboratory studies, Lever used it in the treatment of mycotic infections of the human skin. It appeared that improvement is obtained sooner than with other fungicidal agents. The author used the clinical appearance of the lesions as the sole criterion of improvement, because it was found that the apparent disappearance of fungi from the lesions was an unreliable index. Often the fungi became undemonstrable after even indifferent treatment without clinical cure. In many cases of clinically clearcut mycotic infection he was unable to demonstrate the fungus, usually because the patient came under treatment after some time of self medication. He found that, if iodocholeate ointment is used, the most desirable concentration is 2.5 per cent; whereas, if the solution is used, 1 per cent is often sufficient, as the solution brings the iodine in more intimate contact with the skin. When the disease is resistant the 2.5 per cent solution may hasten improvement. Irritation was only occasionally observed after prolonged use of the 2.5 per cent solution. Especially good were the results in those mycotic infections in which there was maceration with oozing, because of the drying and astringent effect of the iodocholeate solution. Both ointment and solution were applied

three times a day. If the solution was used, no protecting bandage was necessary, as the solution dried soon on the skin and left a thin film. This is convenient when the patient is ambulatory. If the ointment was used, a bandage was applied. It proved valuable in some cases to use the solution twice during the day and the ointment at night. If the disease is in the acute inflammatory stage, however, or if there is secondary infection, it is well to treat the lesions for a few days with boric acid or compresses before starting the iodocholeate treatment.

Laughlen Test in Diagnosis of Syphilis.—Lever and Massie compared a series of 780 Laughlen tests with the Hinton, the rapid Hinton, the Wassermann and the Kahn test. The Laughlen test was found to be easy and fast (from fifteen to twenty minutes to perform). The reading of the test is relatively easy for those who have had experience with it. The sensitivity and specificity of the Laughlen test warrant its use as an emergency test in preference to any other test performed in this series. Compared with two other rapid tests, the Laughlen test was found less sensitive but more specific than the rapid Hinton and less specific but more sensitive than the Kahn test.

Archives of Surgery, Chicago

39: 1-170 (July) 1939

Lipid Amino Nitrogen Content of Blood in Diseases of Liver and of Biliary Tract. W. D. Andrus and R. A. Moore, New York.—p. 3.

Laryngeal Spasm and So-Called Tracheal Collapse: Experimental and Clinical Studies. W. H. Cole, Chicago.—p. 10.

Tumor of Hypophysial Duct (Rathke's Cysts): Report of Eleven Consecutive Cases. J. G. Love, C. H. Shelden and J. W. Kernohan, Rochester, Minn.—p. 28.

*Concealed Chronic Alcoholism in Surgical Patients. A. K. Foster Jr., New York.—p. 57.

Peripheral Vascular Status of 100 Unselected Patients with Diabetes. F. L. Pearl and A. Kandel, San Francisco.—p. 86.

Concentration of Procaine in Cerebrospinal Fluid of Human Being After Subarachnoid Injection: Second Report. H. Koster, A. Shapiro and R. Warshaw, Brooklyn.—p. 97.

Migraine Caused by Demonstrable Pathologic Conditions: Report of Case with Cure by Removal of Small Tumor in Calcarine Fissure. O. R. Hyndman, Iowa City.—p. 104.

*Osseous Changes Associated with Lymphogranuloma Venereum. L. T. Wright and Myra Logan, New York.—p. 108.

Frontal Puncture for Ventriculography. S. W. Gross, New York, and W. Ehrlich, Newark, N. J.—p. 122.

Drainage of Common Bile Duct with Resultant Extrarenal Azotemia. K. E. Lemmer and J. P. Malec, Madison, Wis.—p. 125.

Fate of Buried Skin Grafts in Man. L. A. Peer, Newark, N. J.—p. 131.

Review of Urologic Surgery. A. J. Scholl, Los Angeles; F. Hinman, San Francisco; A. von Lichtenberg, Budapest, Hungary; A. B. Hepler, Seattle; R. Gutierrez, New York; G. J. Thompson, J. T. Priestley, Rochester, Minn.; E. Wildholz, Berne, Switzerland, and V. J. O'Conor, Chicago.—p. 145.

Concealed Alcoholism in Surgical Patients.—Foster discusses some facts about surgical patients who may be said to be suffering from a condition that he calls concealed chronic alcoholism. He emphasizes the need of recognizing all types of alcoholism in patients with surgical conditions and illustrates this need by reporting eight such cases. For the patient with a condition requiring surgical intervention who denies, understates or conceals his alcoholic habits, an unusual series of events often follows. Complications or sequelae may occur that commonly do not occur in the case of the abstainer. There will often be at some time in the course of his condition evidence of loss of cerebral stamina; that is, his nervous system may show instability at various points. Treatment consists in appreciating the importance of the alcoholism early in the course of surgical treatment and in the prescription of alcohol in addition to the commonly used sedatives before dangerous depression or complications have set in. Vitamin medication is indicated preoperatively and postoperatively. A new and arbitrary (but indicated) rule of including in the first diagnosis of the condition of the surgical patient the possibility that concealed chronic alcoholism (or a tendency toward alcoholism) is present would guarantee the patient a safer course during hospitalization. Much can be learned from a patient as to the possible presence of concealed chronic alcoholism by a careful recording of detailed histories, a complete physical examination and close observation for changes in physiognomy and general physical appearance; also, by a careful noting of numerous incongruities, various endocrine activities and evidences of mental and emotional instability. The surgeon should consider the possible role of alcohol in every patient that he observes. All but two of the eight patients that the author encountered were aided by small doses of alcohol.

Osseous Changes in Venereal Lymphogranuloma.—There is much evidence of the constitutional nature of infection with venereal lymphogranuloma and for this reason Wright and Logan report two apparently proved cases of bone necrosis associated with venereal lymphogranuloma and a third case in which such an association is highly probable. The literature reporting osseous and articular lesions associated with venereal lymphogranuloma has been critically reviewed by them. In the early phases of the disease arthritic and polyarthritic manifestations may occur, although they are not especially common. Chronic arthritis may occur late in the disease. Except for cases of arthritis, hydrarthrosis and pyo-arthrosis, no instances of actual destruction of bone were found. They believe that lymphatic involvement with perilymphatic reaction is a possible explanation of the destructive lesions of the pubes in two of their patients. The close proximity of the inguinal glands, with their massive infection to the pubes, suggests the possibility that the infection spread by direct extension.

Arkansas Medical Society Journal, Fort Smith

36: 43-66 (July) 1939

Painful Nephroptosis and Its Treatment. J. C. Pennington, Nashville, Tenn.—p. 43.

Treatment of Noninstitutionalized Cases of Pellagra: Case Reports. C. N. Bogart, Forrest City.—p. 45.

California and Western Medicine, San Francisco

50: 393-464 (June) 1939

Diaphragmatic Hernia: Results of Surgical Treatment in 210 Cases. S. W. Harrington, Rochester, Minn.—p. 399.

Chronic Ulcerative Colitis. A. C. Reed, San Francisco.—p. 402.

What Can One Expect from Radiation in Carcinoma of Rectum and Anus? O. N. Meland, Los Angeles.—p. 403.

Sulfanilamide: Some Immunologic Studies. P. Michael, Oakland.—p. 407.

Foreign Body in the Immature Vagina. G. C. Schauffler, Portland, Ore.—p. 411.

Diphtheria: Statistical Report of 3,344 Cases. J. C. Geiger, R. W. Burlingame and Hilda F. Welke, San Francisco.—p. 413.

Canadian Medical Association Journal, Montreal

40: 535-642 (June) 1939

Thermostability of Pituitary Extracts in Relation to Ketogenic Activity. A. H. Neufeld and J. B. Collip, Montreal.—p. 535.

Antagonist to Adrenalin Hyperglycemia in Pituitary Extracts. A. H. Neufeld and J. B. Collip, Montreal.—p. 537.

Some Remarks on Ligments. D. Mainland, Halifax, N. S.—p. 539.

Effect of Cervical Secretions on Vitality of Spermatozoa. M. C. Watson, Toronto.—p. 542.

Sulfanilamide in Treatment of Bacterial Endocarditis. L. J. Solway and H. G. Pritzker, Toronto.—p. 543.

Fractures of Morphologic Neck of Humerus in Children. L. J. Austin, Kingston, Ont.—p. 546.

Closed Intrapleural Pneumonolysis: Report of 124 Cases. C. H. Andrews, Prince Albert, Sask.—p. 548.

Extrapleural Pneumothorax. C. A. MacIntosh, Montreal.—p. 553.

*Bronchiectasis and Tuberculosis in Relation to Nasal Sinusitis. L. DeV. Chipman and R. J. Collins, St. John, N. B.—p. 557.

Definition of Blindness and Standards for Sight-Saving Classes. F. A. Aylesworth, Toronto.—p. 562.

Carcinoma of Breast. J. G. MacDougall, Halifax, N. S.—p. 566.

Epithelioma of Lip. L. J. Carter, Brandon, Man.—p. 569.

Fasciotomy for Chronic Sciatica and Backache: Analysis of End Results. J. A. Nutter, Montreal.—p. 571.

Bursitis. H. K. MacDonald, Halifax, N. S.—p. 573.

Diagnosis and Treatment of Peripheral Arterial Disease. H. M. Elder, Montreal.—p. 578.

Dehydration and Lumbar Puncture in Treatment of Cranial Injuries. F. Turnbull, Vancouver, B. C.—p. 579.

Mumps Encephalitis: Case. R. C. Stewart, Montreal, and P. Edwards, Bridgetown, British West Indies.—p. 582.

Pellagra in British Columbia: Case. F. N. Robertson and D. E. H. Cleveland, Vancouver, B. C.—p. 584.

Bronchiectasis, Tuberculosis and Sinusitis.—Chipman and Collins declare that there is a close relationship between sinusitis, pneumonitis and bronchiectasis and that a more accurate diagnosis of sinus infection should be made early in life and every effort made to provide adequate treatment. It is difficult to evaluate the relationship of sinusitis in tuberculosis or the influence of a preexistent upper respiratory infection as a factor in the cause of a breakdown. They state that for many years the medical staff at the Saint John Clinic for Tuber-

culosis encountered a group of cases characterized by symptoms suggestive of tuberculosis but found on examination to be nontuberculous infection usually associated with sinusitis. The patients presented themselves with a definite symptom complex consisting of fatigue (often intensive and seemingly out of proportion to their physical appearance), some loss of weight, a throaty or clearing cough, loss of appetite, headache and a persistent low grade fever. With these symptoms there was a history of frequent colds of the head and chest that seemed to merge into one another over a period of three or four months, especially in the fall and winter. They had cough and sputum that persisted throughout this period. During the seven years from 1931 to 1938, 4,005 new patients were examined in the Tuberculosis Clinic; 2,670 were found to be nontuberculous. From these 597 were selected as presenting symptoms indicative of sinusitis, their nasal passages were examined and when roentgenograms of the paranasal sinuses were made 352 showed definite evidence of sinusitis.

Iowa State Medical Society Journal, Des Moines

29: 231-274 (June) 1939

President's Address: Principles and Practice. A. W. Erskine, Cedar Rapids.—p. 231.
President-Elect's Address: A Profession or a Trade? F. A. Hennessy, Calmar.—p. 233.
Rationale for Management of Heart Disease. T. J. Dry, Rochester, Minn.—p. 236.
Coarctation of Aorta: Report of Case with Rupture Distal to Constriction. J. T. Hecker, Cedar Rapids.—p. 240.
Problems of Deafness. G. F. Harkness, Davenport.—p. 245.
Fifteen Years' Obstetric Practice. F. R. Richmond, Fort Madison.—p. 250.

Johns Hopkins Hospital Bulletin, Baltimore

64: 369-456 (June) 1939

Increased Intracranial Pressure: Clinical Analysis of Causes and Characteristics of Several Types. F. R. Ford and E. L. Murphy, Baltimore.—p. 369.
Morphologic Changes in Blood of Pigs Associated with Deficiency of Water Soluble Vitamins and Other Substances Contained in Yeast. M. M. Wintrobe, M. Samter and H. Lisco, Baltimore.—p. 399.
Dietary Protein and Regeneration of Serum Albumin: III. Potency Values of Egg White, Beef Liver and Gelatin. A. A. Weech and E. Goettsch, New York.—p. 425.
Pathogenicity of Avirulent Pneumococci for Animals Deprived of Leukocytes. A. R. Rich and Clara M. McKee, Baltimore.—p. 434.

Journal of Bone and Joint Surgery, Boston

21: 531-838 (July) 1939. Partial Index

Xanthomatous Tumors of Joints. D. A. De Santo and P. D. Wilson, New York.—p. 531.
*Nephrolithiasis Occurring in Recumbency. R. G. Pulvertaft, Grimsby, England.—p. 559.
Affections of Muscles. C. F. Geschickter and I. H. Maseritz, Baltimore.—p. 576.
Principles Involved in Treatment of Congenital Clubfoot. J. H. Kite, Atlanta, Ga.—p. 595.
Surgical Treatment of Joint Tuberculosis. M. Cleveland, New York.—p. 607.
Technic for Longitudinal Pin Fixation of Certain Fractures of Ulna and Femur. L. V. Rush and H. L. Rush, Meridian, Miss.—p. 619.
Astragalectomy and Treatment of Calcaneovalgus. T. C. Thompson, New York.—p. 627.
*Vertebral Lesions in Undulant Fever. W. A. Bishop Jr., Oklahoma City.—p. 665.
Autogenous Bone Graft. W. C. Campbell, Memphis, Tenn.—p. 694.
Arthrodesis for Ununited Fracture of Neck of Femur. A. B. Gill, Philadelphia.—p. 710.
Supracondylar Fracture of Femur with Anterior Position of Lower Fragment. D. Hinton, Drexel Hill, Pa.—p. 719.
Gold Therapy in Rheumatoid Arthritis. D. Sashin, New York; J. Spanbock, Bronx, N. Y., and D. H. Kling, Los Angeles.—p. 723.
Experiences with Corkscrew Bolt. R. K. Lippmann, New York.—p. 735.
Dupuytren's Contracture of Palmar and Plantar Fascias. L. Greenberg, New York.—p. 785.
Congenital Bilateral Talipes Equinus in Twins. P. W. Lapidus, New York.—p. 792.

Nephrolithiasis Occurring in Recumbency.—Pulvertaft has encountered sixty cases of nephrolithiasis occurring in recumbent patients; thirty-three males and twenty-seven females. The average age was 19 years; the oldest patient was 56 and the youngest 3½ years of age. The average period of recumbency was nine months; the longest period was five and one-half years and the shortest five weeks. There can be little doubt that stagnation in the renal pelvis is an important factor in the formation of these stones. In its early stages the renal calculus of the ambulatory patient is usually located in the lower calices or pelvis. Prolonged immobilization is followed by general decalcification of the skeleton. In the early stages of formation calculi are often little more than thin deposits on the renal walls, and they rapidly disintegrate on movement or change of posture. Rigid fixation effectively preserves these early concretions until consolidation has occurred. The calculus due to recumbency usually shows itself in either one of two ways: it may be discovered during routine x-ray examination before the development of symptoms, or change of posture may be followed by an attack of colic or hematuria. In 38 per cent of the author's cases, roentgenograms revealed calculi before their presence was suspected. In 54 per cent, hematuria or colic, or both, drew attention to the kidneys. The abdominal pain that follows a renal or ureteral distribution on change of posture has been mistaken for appendicular colic. Secondary infection may be the sequela of stone formation, and in a small group of cases (7 per cent) pyelitis or pyuria led to the diagnosis of a stone. Patients who need to be recumbent for long periods should undergo postural treatment, and routine x-ray examinations should be done of the renal tracts. Some of these calculi that occur in recumbency disappear when the erect posture is resumed, but many remain and these may require surgical intervention. The complication may be fatal. Some means must be devised to overcome the defective drainage of the kidneys. A simple method is bed tilting.

Vertebral Lesions in Undulant Fever.—Bishop reports the fifty-seventh case of spondylitis complicating undulant fever. Brucella suis was isolated from the blood soon after the local lesion developed, which occurred more than a year after the initial infection. The lesion in the lumbar region was treated by surgical fusion, and the cervical lesions by support (head traction), with improvement after seven months. Clinically, hematogenous localization of bacteria occurs, ordinarily in the osseous marrow, but exceptionally in the disk in young persons. X-ray examination reveals a spreading process of the infiltrative type in which there is a reactive phenomenon, proliferative in nature and characterized by endosteal and periosteal reaction. The result is sclerosis of the body with hypertrophic spur formation. There is little tendency to invasion of the paravertebral tissues. This complication originates usually in the convalescent stage of undulant fever but may make its appearance at any time. It is accompanied by a febrile reaction and is characterized by the acuteness of the symptoms and a benign clinical course. Recovery is the rule.

Journal of Experimental Medicine, New York

70: 1-116 (July) 1939

Studies on Bactericidal Agent Extracted from a Soil Bacillus: I. Preparation of the Agent: Its Activity in Vitro. R. J. Dubos, New York.—p. 1.
Id.: II. Protective Effect of Bactericidal Agent Against Experimental Pneumococcic Infections in Mice. R. J. Dubos, New York.—p. 11.
Simultaneous Occurrence of Viruses of Canine Distemper and Lymphocytic Choriomeningitis: Correction of "Canine Distemper in Rhesus Monkey." G. Dalldorf, Valhalla, N. Y.—p. 19.
Artificial Maintenance Mediums for Cell and Organ Cultivation: II. Cultivation of Organs in Artificial Mediums. Lillian E. Baker and A. Carrel, New York.—p. 29.
Behavior of Abnormal Human Thyroid Tissue Cultivated in Lindbergh Apparatus. N. C. Foot, Lillian E. Baker and A. Carrel, New York.—p. 49.
Soluble Antigen of Lymphocytic Choriomeningitis: I. Separation of Soluble Antigen from Virus. J. E. Smadel, R. D. Baird and M. J. Wall, New York.—p. 53.
Cellular Reactions to Dye-Protein with Concept of Mechanism of Antibody Formation. Florence R. Sabin, New York.—p. 67.
*Poliomyelitis and Lymphatic Apparatus. J. M. Yoffey and C. K. Drinker, Boston.—p. 83.
Mouse Test for Measuring Immunizing Potency of Antirabies Vaccines. L. T. Webster, New York.—p. 87.
Behavior of Pox Viruses in Respiratory Tract: II. Response of Mice to Nasal Instillation of Variola Virus. J. B. Nelson, Princeton, N. J.—p. 107.

Poliomyelitis and Lymphatic Apparatus.—Yoffey and Drinker carried out experiments to determine whether virus (Toomey T strain) could ever be detected in the cervical or the thoracic duct lymph of monkeys. They also endeavored to produce the disease by the injection of virus into lymph nodes and by rubbing it into the taste buds. The results of the experiments show that virus is not present in cervical lymph imme-

diately after nasal instillation, after paralysis has developed or after infection has taken place but before the onset of paralysis. Virus is not present in the thoracic duct lymph of paralyzed animals. Infection is not produced by injecting virus into lymph nodes or by rubbing virus into taste buds. Since the results have been so consistently negative the authors conclude that the strain of virus employed does not spread by way of the lymphatic vessels and nodes or else that it is present in concentrations below the minimal infective dose.

Journal of Immunology, Baltimore

38: 489-576 (June) 1939

Studies on Hemolytic Streptococcus: I. Isolation and Concentration of Erythrogenic Toxin of NY5 Strain of Hemolytic Streptococcus. A. H. Stock, Pittsburgh.—p. 489.

Id.: Experimental Use of Purified Erythrogenic Toxins in Immunization Against Scarlet Fever. Maud L. Menten, H. H. Finlay and A. H. Stock, Pittsburgh.—p. 499.

Serum Sickness in Rabbits: VII. Method for Removing or Destroying Factor Causing Serum Sickness. M. S. Fleisher and L. R. Jones, St. Louis.—p. 511.

Blood Groups and MN Types of Eskimos in East Greenland. V. Fabricius-Hansen, Copenhagen, Denmark.—p. 523.

Specificity of Formolized Proteins. J. L. Jacobs and S. C. Sommers, Boston.—p. 531.

Orientation of Antigen-Antibody Specificity in Monomolecular Films. L. A. Chambers, Philadelphia.—p. 543.

Effects of Aleuronat Injection on Complementing Activity of Guinea Pig Serum. O. O. Williams and T. Dougherty, Oklahoma City.—p. 559.

Journal Industrial Hygiene & Toxicology, Baltimore

21: 205-230 (June) 1939

Treatment of Hydrofluoric Acid Burns. A. T. Jones, Widnes, Lancashire, England.—p. 205.

Treatment of Compressed Air Illness Utilizing Oxygen. O. D. Yarbrough and A. R. Behnke, Washington, D. C.—p. 213.

Investigations on Possible Carcinogenic Effect of Anthracene and Chrysene and Some of Their Compounds: I. Effect of Painting on Skin of Mice. J. A. Pollia, Los Angeles.—p. 219.

Decomposition of Halogenated Hydrocarbon Vapors by Smoking. H. B. Elkins and L. Levine, Boston.—p. 221.

Method of Counting Samples Taken with the Impinger. C. R. Williams, Boston.—p. 226.

Journal of Neurophysiology, Springfield, Ill.

2: 257-360 (July) 1939

*Cerebral Blood Flow During Induced Epileptiform Seizures in Animals and Man. W. Penfield, K. von Santha and A. Cipriani, Montreal.—p. 257.

Role of Sympathetic System in Reflex Dilatation of Pupil. B. Ury and E. Gellhorn, Chicago.—p. 268.

Effects of Hypoglycemia and Pentobarbital Sodium on Electrical Activity of Cerebral Cortex and Hypothalamus (Dogs). H. Hoagland, H. E. Himwich, E. Campbell, J. F. Fazekas and Z. Hadidian.—p. 276.

Cortical Action Potentials During Anesthesia. H. K. Beecher and F. K. McDonough, Boston.—p. 289.

Cerebral Acoustic Area of Cat: Combined Oscillographic and Cyto-Architectonic Study. F. Bremer and R. S. Dow, Brussels, Belgium.—p. 308.

Factors for Facilitation and Extinction in Central Nervous System. J. G. Dusser de Barenne and W. S. McCulloch, New Haven, Conn.—p. 319.

Control by Central Nervous System of Rectal Smooth Muscle. O. R. Langworthy, Baltimore, and S. J. Rosenberg, Perry Point, Md.—p. 356.

Cerebral Blood Flow in Epileptiform Seizures.—Penfield and his colleagues observed that in chronic epileptic subjects focal fits may be induced by electrical stimulation of the cortex which are outwardly identical with the habitual fits of the patient in question. During the seizure there is an increase in circulation within the circumscribed area of cortex which is involved in the "discharge" that produces the fit. This increase begins within the first minute after the precipitating stimulus with no preliminary decrease in flow and it outlasts the clinical evidence of the seizure. In animals epileptiform seizures were accompanied by a constant circulatory increase in the motor cortex (using the term motor broadly). A similar but more marked increase has been observed in the caudatum, putamen, pallidum and thalamus. This blood flow increase appeared to be limited to the contralateral hemisphere in cases of unilateral convulsion. In generalized convulsion the change was equally present in the two hemispheres. This increase in circulation started a few seconds after the first muscular movements and stopped soon after the attack was over.

New England Journal of Medicine, Boston

220: 979-1022 (June 15) 1939

Pyelitis, Ureteritis and Cystitis Cystica. F. S. Patch, Montreal.—p. 979.

*Intramuscular Use of Monoethanolamine Salt of Cevitamic Acid in Patients with Vitamin C Deficiency. E. L. Lozner, F. J. Poble and F. H. L. Taylor, Boston.—p. 987.

Metrazol Treatment of Depressions. Frances Cottington and A. J. Gavigan, Worcester, Mass.—p. 990.

Calcific Aortic Stenosis: Clinical Entity. M. Texon, New York.—p. 992.

Thoracic Surgery. E. D. Churchill, Boston.—p. 998.

220: 1023-1060 (June 22) 1939

Convalescent Care of Patients with Craniocerebral Injuries. D. Munro, Boston.—p. 1023.

Technic for Successful Use of Protamine Zinc Insulin. W. S. Cullen and L. C. Boss, Brooklyn.—p. 1026.

Chiari's Syndrome in Patient with Polycythemia Vera: Report of Case. M. D. Altschule and G. White, Boston.—p. 1030.

National and State Program for Tuberculosis Control: Presidential Address. F. T. Lord, Boston.—p. 1033.

Pathology. T. B. Mallory, Boston.—p. 1037.

Monoethanolamine Salt of Ascorbic Acid for Vitamin C Deficiency.—Lozner and his associates find that the intramuscular injection of the monoethanolamine salt of ascorbic acid presents a simple and effective way of administering vitamin C parenterally when need for this type of injection is indicated. There were no immediate or delayed, local or systemic reactions following its use in the three patients to whom it was administered. Its intramuscular administration was followed by a prompt increase in the vitamin C content of the blood. The loss of vitamin C in the urine was not as marked as when crystalline ascorbic acid was given intravenously. A patient with marked vitamin C deprivation was saturated in eight days by the daily intramuscular injection of 100 mg. of the monoethanolamine salt of ascorbic acid.

New York State Journal of Medicine, New York

39: 1167-1258 (June 15) 1939

Cesarean Section: Its Relation to Maternal Mortality. P. Titus, Pittsburgh.—p. 1173.

Vitamins in Nervous Health and Disease. H. Wortis, New York.—p. 1178.

*Postpuncture Reactions: Clinical Study. K. M. Davenport, Hot Springs, Ark.—p. 1185.

Malignancies in Infancy and Childhood: Clinical and Pathologic Survey of Sixty-Four Consecutive Cases. D. W. Scott, New York.—p. 1188.

Postpuncture Reactions.—Davenport obtained follow-up data after 178 cisternal and 681 spinal taps. Significant postpuncture reactions developed in eighteen cases in which cisternal punctures were done, and in the 681 spinal punctures significant postpuncture headaches developed in 223 cases. Reactions to cisternal puncture were much milder; only two reactions lasted longer than three days. Spinal puncture reactions averaged 4.32 days. A relationship between race and the incidence of reactions was shown in the case of spinal punctures. The percentage relationship was Negro 27.04 per cent, white 32.9 per cent and Puerto Rican 43.1 per cent. A relationship between sex and the incidence of reactions was males 28.9 per cent and females 43.9 per cent. A relationship between neurosyphilis and the incidence of spinal puncture reactions was seen, tending to bear out the tradition that postpuncture headache usually indicates a negative spinal fluid or but minor changes in the cerebrospinal axis. Neurosyphilis was present in 22.4 per cent of the cases in which reactions occurred. Postpuncture headache was 95 per cent assurance that the spinal fluid was negative or cerebrospinal involvement was of mild degree.

Ohio State Medical Journal, Columbus

35: 577-688 (June) 1939

Practical Approach to Diagnosis and Treatment of Diseases of Gallbladder. A. A. Hall, Columbus.—p. 593.

Rupture of Supraspinatus. H. L. Bramhaugh, Dayton.—p. 597.

Infections in Urinary Tract in Children. C. C. Higgins, Cleveland.—p. 600.

Report of Case of Sarcoma of Gallbladder. E. J. Oesterlin, Marlboro, N. J., and L. H. Mendelson, Springfield.—p. 603.

Preparation of Plant Gil Extracts for Diagnosis and Treatment. L. E. Seyler, Dayton.—p. 607.

Pneumococcic Peritonitis with Recovery: Case. F. J. Doran, Cleveland.—p. 609.

Status of Puerperal Gynecology in Modern Obstetrics. J. L. Bubis, Cleveland.—p. 611.

Pregnancy Complicated by Heart Failure, Chorea, Pyelonephrosis and Psychosis. A. Cline, Dayton.—p. 619.

Simple Allergen-Free Room in Emergency Management of Nonseasonal Asthma. J. Forman, Columbus.—p. 621.

Public Health Reports, Washington, D. C.

54: 969-1042 (June 9) 1939

Analysis of 5,116 Deaths Reported as Due to Acute Coronary Occlusion in Philadelphia, 1933-1937. O. F. Hedley.—p. 972.

*Smallpox Vaccination: Comparison of Vaccines and Technics. R. V. Ellis and Ruth E. Boynton.—p. 1012.

Influence of Castration on Induction of Subcutaneous Tumors in Mice of C3H Strain by 1: 2: 5: 6-Dibenzanthracene. H. L. Stewart.—p. 1026.

54: 1043-1090 (June 16) 1939

Studies on Immunizing Substances in Pneumococci: IX. Cutaneous Tests in Nonimmunized and Immunized Individuals in Relationship to Serum Antibody Content. L. D. Felton and P. F. Prather.—p. 1053.

Rocky Mountain Spotted Fever: Protective Value for Guinea Pigs of Vaccine Prepared from Rickettsiae Cultivated in Embryonic Chick Tissues. H. R. Cox.—p. 1070.

Preservation of Lymphocytic Choriomeningitis and St. Louis Encephalitis Viruses by Freezing and Drying in Vacuo. J. G. Wooley.—p. 1077.

Smallpox Vaccination.—Ellis and Boynton give the results of the vaccination against smallpox of 9,086 students at the University of Minnesota during the years from 1936 to 1938. Prior to admission to the university 83 per cent of these students had been vaccinated successfully. Three kinds of vaccine were used, two cultured artificially by the methods of Rivers and Goodpasture, respectively, and one prepared by the usual calf method. The Rivers vaccine was employed intracutaneously, the Goodpasture both intracutaneously and by multipuncture and the calf vaccine was used only by multipressure technic. The calf lymph virus gave a higher percentage of primary takes than the other two types of virus. However, the results with the Goodpasture vaccine when used intracutaneously were not grossly inferior to those obtained with calf lymph. Severe local and constitutional reactions following vaccination were slightly less frequent with the Goodpasture vaccine than with the calf lymph vaccine and severe local and constitutional reactions were reported more frequently with the Rivers vaccine than with any other type of vaccine. Immune reactions were encountered in more than 61 per cent of students who had never been vaccinated successfully and who had never had smallpox. A majority of these students had been vaccinated many times.

Puerto Rico J. Pub. Health & Trop. Med., San Juan

14: 389-482 (June) 1939

Observations on Course of Naturally Acquired Malaria in Puerto Rico. W. C. Earle, Cuernavaca, Morelos, Mexico; M. Pérez, San Juan; J. del Río, Morovis, and C. Arzola.—p. 391.

Helobdella Punctato-Lineata, New Leech from Puerto Rico. J. P. Moore, Philadelphia.—p. 422.

Parasite Surgery of Isabela. W. A. Hoffman and J. L. Janer, San Juan.—p. 439.

Health and Socio-Economic Studies in Puerto Rico: III. Physical Measurements of Agricultural Workers. P. Morales Otero and M. A. Pérez, San Juan.—p. 450.

Radiology, Syracuse, N. Y.

32: 651-784 (June) 1939

Carcinoma of Thymus, with Marked Pulmonary Osteo-Arthropathy. E. R. Miller, San Francisco.—p. 651.

*Evaluation of Roentgen Irradiation as Adjunct in Treatment of Acute Otitis Media: Preliminary Report. A. H. Dowdy, C. A. Heatly and W. W. Pierce, Rochester, N. Y.—p. 661.

*Roentgen Therapy of Carefully Selected Sinus Infections. F. M. Hodges and L. O. Soend, Richmond, Va.—p. 669.

Roentgen Treatment of Acute Peritonitis and Other Infections with Mobile X-Ray Apparatus. J. F. Kelly and D. A. Dowell, Omaha.—p. 675.

Further Experience with Roentgen Therapy for Bronchiectasis. M. Berck and W. Harris, New York.—p. 693.

Dosage and Method of Roentgen Therapy for Inflammatory Conditions. A. U. Desjardins, Rochester, Minn.—p. 699.

Efficiency Curves in Quantitative Radiobiology. W. H. Love, Sydney, Australia.—p. 708.

Roentgenographic Images in Primary Carcinoma of Lung. L. A. Hochberg, Brooklyn.—p. 713.

Roentgenologic Consideration of Gastritis. M. Feldman, Baltimore.—p. 726.

Roentgen Irradiation for Acute Otitis Media.—Dowdy and his colleagues compare the results obtained in thirty cases of acute otitis media treated with one or more doses of 100 roentgens and twenty-six unirradiated controls. Even these small doses of x-rays seemed to be of distinct value in relieving the acute symptoms and in shortening the course of the disease. The average duration of the disease for the acute, purulent, uncomplicated cases was shortened by six days, while that of the complicated cases was shortened by sixteen days. The clinical improvement when the treatment is effective is still more striking. The incidence of surgery appeared to be reduced. The treatment is a conservative method, since it does not interfere in any way with other indicated forms of treatment, and the dosage used causes no permanent damage. As with other forms of treatment, better results are obtained in the early stages of the disease.

Roentgen Therapy for Sinus Infections.—Hodges and Snead believe that sinus disease is far more prevalent than is usually realized, that because of the meager symptoms its diagnosis is being overlooked in most instances, that the treatment is frequently inadequate and that in many instances no accurate method of checking the results of treatment is being used in a routine way. Since almost every patient should be seen by both the rhinologist and the roentgenologist for diagnosis and follow-up of the results of the treatment, a whole-hearted and sincere cooperation between them is absolutely essential. The authors are more enthusiastic than ever before over the results that can be obtained by irradiation in the treatment of certain types of infections of the nasal accessory sinuses. 1. Acute sinusitis, with good drainage, will generally clear up fairly quickly under the usual treatment of astringents, packings and washings. In these cases irradiation is not necessary unless it is used to hasten recovery. 2. Cases of subacute or subchronic sinusitis respond best to irradiation. Symptoms in this type of case have been present for from several months to several years; usually there is a cough and a history of recurring colds and the patient has been under the care of one or more rhinologists. Washings cause little or no change in the appearance of the antrums. In many of these cases the bronchovesicular shadows of the lower lobes are exaggerated. 3. In the third group of cases symptoms have been present for several years, usually with hyperplastic sinusitis. There is marked cloudiness of the ethmoids and marked thickening of the membrane in the antrums. Usually the longer the duration of the infection, the poorer the result. The majority of these cases have also responded to irradiation. 4. The fourth type consists of early or reasonably early polypoid changes, especially in the nose, with a history of infection for many years. The majority of these patients experienced marked relief from irradiation. In a number the sense of smell was reestablished and two have had marked improvement in vision following treatment. Others, who were unable to breathe through the nose at all, have been relieved in this respect. Some who had to have repeated operations for removal of polypoid material from the nose have had no recurrence of this. 5. Old, exceedingly chronic polyp formation, usually widespread, is present in the fifth and last type of case. Only a small percentage of these patients receive much benefit from irradiation. In a few cases of from fifteen to twenty years' duration, however, definite benefit from treatment has been experienced. The first three groups have been treated with 130 kilovolts with 6 mm. of aluminum filter, about 300 roentgens. This is given in three or four treatments, over a period of from one to three weeks. Children have been given smaller doses. The remaining groups have been treated with 200 kilovolts with from 0.5 to 2 mm. of copper filter, 600 roentgens. To the second and third group of patients, with cough and an increase in the bronchovesicular shadows of the lower lobes, small doses of radiation were also given over the lungs.

Rocky Mountain Medical Journal, Denver

36: 441-512 (July) 1939

Problem of Difficult Hernias. W. Senger, Pueblo, Colo.—p. 458.

*Some Endocrine Dyscrasias Associated with Conduct Disorders in Colorado Springs Children. C. S. Gydesen and B. J. Murphey, Colorado Springs.—p. 462.

Exophthalmic Goiter: Management of Poor Surgical Risk. G. B. Kent and K. C. Sawyer, Denver.—p. 466.

Role of Allergy in Migraine. W. C. Service, Colorado Springs.—p. 471.

Anorectal Infection: Focus of Infection of Major Importance. H. Raile, Salt Lake City.—p. 475.

Endocrine Dyscrasias Associated with Conduct Disorders.—In view of the contradictory and confusing reports regarding the relationship, or lack of relationship, between behavior disorders in children and the various types of endocrine dyscrasias, Gydesen and Murphey reviewed sixty-four cases that had been examined by a child psychiatrist in a child guidance clinic and also by an endocrinologist in private

practice. Thirty-six of these children were referred to the endocrinologist by the child guidance clinic as cases presenting a possible endocrine dyscrasia. The thirty-six cases were selected from a series of 313 consecutive full-study cases examined in the child guidance clinic. Thyroid (thirty-two) and pituitary (eighteen) disorders were by far the most common conditions discovered. All the children specifically treated showed definite improvement in their school and social adjustment with endocrine therapy.

South Carolina Medical Assn. Journal, Greenville

88: 163-192 (July) 1939

Diagnosis of Rheumatic Disease in Children. W. J. Ball, Charleston.—p. 163.
Goiter in Adolescents, with Special Reference to Hyperthyroidism. R. B. McKnight, Charlotte, N. C.—p. 168.

Surgery, Gynecology and Obstetrics, Chicago

69: 1-128 (July) 1939

Gastroscopy in Gastric Carcinoma; Especially in Its Early Diagnosis. R. Schindler, Chicago, and R. L. Gold, San Francisco.—p. 1.
Cyclic Changes in Chromatin of Nuclei of Endometrium. R. Cleveland, Nashville, Tenn.—p. 18.
*Papillary Tumors of Thyroid and Lateral Aberrant Thyroid Origin. G. Crile Jr., Cleveland.—p. 39.
Cystic Hygroma of Neck: Report of Twenty-Seven Cases. R. E. Gross and C. F. Gorringer, Boston.—p. 48.
*Use of Prostigmine Methylsulfate in Prevention of Postoperative Intestinal Atony and Urinary Bladder Retention. P. A. Marden and E. G. Williamson, Philadelphia.—p. 61.
Ectopic Pregnancy: Review of 310 Operative Cases. L. Langman and M. Goldblatt, New York.—p. 65.
Practical and Clinical Test for Liver Reserve. D. Macdonald, St. Catharines, Ont.—p. 70.
Proctography: Roentgenologic Studies of Rectum and Sigmoid. A. Oppenheimer and G. W. Saleeby, Beirut, Lebanon, Syria.—p. 83.
Choledocholithotomy: MacCormick's Technic. D. Miller, Sydney, Australia.—p. 95.
Operation for Repair of Direct Inguinal Hernia. J. D. Bisgard, Omaha.—p. 98.
Intrapelvic Extraperitoneal Resection of Obturator Nerve. F. A. Chandler and F. Seidler, Chicago.—p. 101.
Instrument to Measure Arterial Pulsation in Digits. C. E. Gardner Jr., Durham, N. C.—p. 103.
New Operation for Metatarsalgia and Splay-Foot. A. Krida, New York.—p. 106.
New Operative Procedure for Repair of Ruptured Cruciate Ligaments of Knee Joint. H. B. Macey, Rochester, Minn.—p. 108.
Palliative Colocolostomy for Inoperable Malignant Lesions of Colon. C. W. Mayo and W. D. Wilson, Rochester, Minn.—p. 110.
Simple Method for Keeping Dry Bladder Fistulas from Cervix Cancer. H. C. Saltzstein, Detroit.—p. 111.
Surgical Treatment of Infiltrating Carcinoma of Bladder. E. Beer, New York.—p. 113.

Papillary and Lateral Aberrant Thyroid Tumors.—Crile reports twenty cases of papillary carcinomas of the thyroid, fifteen cases of papillary adenomas of the thyroid and thirteen cases of papillary tumors arising in lateral aberrant thyroid tissue. In only five of the papillary carcinomas has death occurred as a result of the tumor. In no instance has it been proved that either regional or distant metastasis took place. In nearly half the cases of lateral aberrant thyroid disease the lobe of the thyroid on the affected side contained a tumor histologically identical with the lateral cervical nodules. It is often difficult to distinguish between multiple lateral aberrant thyroid tumors and metastatic papillary carcinoma in cervical lymph nodes. It is probable that many cases reported as papillary carcinoma of the thyroid with metastasis to the regional lymphatics are in reality benign papillary lateral aberrant thyroids with a coexistent benign tumor in the thyroid. Tumors arising in lateral aberrant thyroid tissue are essentially benign. Only two of the forty-five patients classified in the literature as having malignant tumors of lateral aberrant thyroid origin have been reported to have died as a result of recurrence of the tumor following operation. None of the thirteen patients in this series have died as a result of lateral aberrant thyroid disease. Surgical intervention is the indicated treatment for all papillary tumors of thyroid and lateral aberrant thyroid origin. Roentgen therapy has not proved effective.

Prostigmine for Intestinal Atony and Urinary Retention.—Since the value of prostigmine in the treatment of paralytic ileus is well established, Marden and Williamson used it in preventing the postoperative occurrence of intestinal atony and urinary bladder retention. Of 253 operative cases, 250 were studied for intestinal distention and 247 for urinary bladder retention. Three of the cases involved such surgical procedures as first stage colostomy and could not be studied from the standpoint of intestinal atony, and six involved operations on or near the bladder in which catheterization was routine. The patients were divided into three groups: (A) those receiving prostigmine both before and after operation, (B) those receiving it before operation only and (C) those receiving the drug after operation only. In groups A and B, when possible, three injections of prostigmine were given at convenient intervals over the period of eighteen hours immediately preceding operation. In groups A and C the administration of prostigmine was started within four hours of the patient's return from the operating room and continued at intervals of four or six hours for a total of from four to six doses, or more if distention or retention appeared imminent. The 1:2,000 solution of prostigmine in 1 cc. doses was used. In groups A and B the incidence of intestinal distention was reduced to 5.7 per cent. In group C the incidence of distention was 1.4 per cent. No ill effects resulted from the continued use of prostigmine after end to end anastomoses and other types of gastrointestinal surgery. The tone of the intestine was observed at operation to be much better in those patients who had received prostigmine before operation. In the urinary retention series, patients receiving prostigmine before operation required catheterization in but 3.9 per cent of cases, while 6.9 per cent of those receiving the drug only after the operation had to be catheterized. Some patients, during the twelfth and eighteenth postoperative hours, experienced a desire to void but were unable to do so until later. To aid these patients, in addition to the regular routine doses, 1 cc. injection of 1:2,000 prostigmine was given every hour for three injections. This resulted in the most gratifying response. Most of the patients voided after the first or second injection and in no case was catheterization necessary. No patient in the combined series exhibited any marked lowering of the blood pressure or slowing of the pulse. There was no appreciable degree of miosis, impairment of accommodation or sweating. This is in agreement with the observations of other investigators. Some patients received as many as twenty-four 1 cc. doses of 1:2,000 prostigmine. Subjective complaints were rare and "gas pains" were infrequent.

Virginia Medical Monthly, Richmond

66: 381-446 (July) 1939

Tuberculosis in the Negro and Their Response to Therapy. C. L. Harrell, Norfolk.—p. 381.
Tuberculous Tracheobronchitis. W. L. Nalls and D. B. Cole, Richmond.—p. 387.
Surgical Management of Cholecystitis and Cholelithiasis. F. N. Thompson and C. B. Courtney, Newport News.—p. 390.
Advantages of Abdominal Approach to Hernia. W. P. Barnes, Richmond.—p. 395.
Carcinoma Corporis Uteri. A. T. Walker, Portsmouth.—p. 398.
Exanthem Subitum. B. B. Jones, Richmond.—p. 401.
Oligoseptic Treatment of Eye Infection. L. I. Hallay, McClure.—p. 404.
Neoarsphenamine in Herpes Zoster: Case Reports. R. C. Manson, Richmond.—p. 406.
Electric Incubator for Premature Infants. E. A. Harper, Lynchburg.—p. 408.
Erythrocyte Sedimentation Phenomenon: Review. J. P. Lynch, Richmond.—p. 409.
Operative Obstetrics: Some Remarks. W. McMann, Danville.—p. 412.
Necessity of Routine Rectal Examinations: Case Reports. B. W. Rawles Jr., Richmond.—p. 416.
Coronary Thrombosis: Factors in Immediate Prognosis. B. Lidman, Norfolk.—p. 417.
Appendicitis: Its Diagnosis and Treatment. G. H. Reese, Petersburg.—p. 420.

Yale Journal of Biology and Medicine, New Haven

11: 581-694 (July) 1939

Some Remarks on the Early History of Trichinosis (1822-1866). G. Blumer, New Haven, Conn.—p. 581.
Local Induction of Carcinoma of Mammary Gland by Methylcholanthrene. L. C. Strong and G. M. Smith, New Haven, Conn.—p. 589.
Conduction of Pain in Fifth Nerve and Its Bearing on Treatment of Trigeminal Neuralgia. O. Sjöqvist, Stockholm, Sweden.—p. 593.
General Permeability-Increasing Effect of Factor from Mammalian Testicle on Blood Capillaries. F. Duran-Reynals, New Haven, Conn.—p. 601.
Note on Action of Some Carcinogenic Hydrocarbons on Amphibia. F. Duran-Reynals, New Haven, Conn.—p. 613.
Uses and Limitations of Electrocardiography in Diagnosis of Acute Coronary Occlusion, with Particular Reference to Latency of Changes. A. J. Geiger, New Haven, Conn.—p. 619.
Antigenic Patterns in Human Serums: Race Specific Antigens. G. H. Smith, New Haven, Conn.—p. 629.
Teaching the Social Component of Medicine. Elizabeth Rice and I. V. Hiscock, New Haven, Conn.—p. 645.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Annals of Rheumatic Diseases, London

1: 67-160 (May) 1939

Rheumatic Diseases: Etiologic Problem of Rheumatism. W. Leviathal. —p. 67.
*Researches into Etiology of Acute Rheumatism: I. Rheumatic Carditis: Postmortem Investigation of Nine Consecutive Cases. C. A. Green. —p. 86.
Influence of Morphologic Structure on Pathology of Joints. R. G. Abercrombie.—p. 99.
Recent Researches on Arthritis and Rheumatism in the United States. P. S. Hench, Rochester, Minn.—p. 109.
Preliminary Observations on Oxygen and Carbon Dioxide Gas Tensions in Knee Joint in Normal and Pathologic Conditions. O. A. Savage and H. J. Taylor.—p. 134.

Etiology of Acute Rheumatism.—Green examined the pericardial and valvular lesions of nine cases of primary or recurrent rheumatic carditis post mortem and for a control study he also examined the same tissues from a group of nonrheumatic subjects. From eight of these cases he recovered hemolytic streptococci from the heart valves with vegetations and from the pericardial lesions. This organism was present in pure culture in seven valves. In six others coliform organisms were also present, and in one case Streptococcus viridans and Streptococcus haemolyticus were both obtained. No growth was obtained from three of the remaining five valves with vegetations, one yielded Streptococcus viridans, and one was not cultured. As controls, twelve valves without macroscopic lesions from these same hearts were cultured and in no instance were hemolytic streptococci recovered. Coliform organisms were obtained in three valve cultures and Streptococcus viridans in one, the remaining eight being sterile. The heart blood was sterile in six cases of the rheumatic series, coliform organisms were present in two, and in one instance this control was omitted. Any possibility that the presence of hemolytic streptococci was the result of contamination from some source other than the tissues of the bodies under examination was excluded in that the streptococcus recovered from the cardiac lesion in five cases was of the same serologic type as the strain isolated from the individual patient's throat before death. Further, when hemolytic streptococci were isolated from more than one valve the strains were serologically identical. In the twenty-two nonrheumatic cases coliform organisms and hemolytic streptococci were both recovered from the heart valves in a case of postoperative peritonitis, while in one case of bronchopneumonia hemolytic streptococci were obtained in pure culture from the heart blood and heart valves. In both cases the pericardial cultures remained sterile, and all the heart valve cultures yielded growths of hemolytic streptococci. As the valve inoculums were not washed free from blood, the presence of hemolytic streptococci was attributed to traces of infected blood on the valve surfaces.

British Journal of Ophthalmology, London

23: 369-432 (June) 1939

Giant Hole of Retina: Numerous Complications: Successful Visual Result After Four Years: Case. J. C. Marshall.—p. 369.
Etiology of Trachoma. F. H. Stewart.—p. 373.
*Keratoconus Experimentally Produced in the Rat by Vitamin A Deficiency. J. R. Mutch and M. B. Richards.—p. 381.
Comparison of Lens and Skiascope Methods in Retinoscopy with Undilated Pupils. W. J. B. Riddell.—p. 387.
Pathogenesis of Thrombosis of Central Retinal Vein and of Consecutive Glaucoma. P. Weinstein.—p. 392.
Significance of Venous Pulsation of Eyeground. P. Weinstein.—p. 396.

Vitamin A Deficiency and Keratoconus.—Mutch and Richards produced keratoconus experimentally as a sequela to acute xerophthalmia in rats on a vitamin A-free diet. In most cases the corneas regained their normal contour after the animals were given vitamin A for a few weeks. Corneal nebulas and myopias remained as permanent defects. In view of this it seems probable to the authors that, in countries in which xerophthalmia among the human population is not uncommon, varying degrees of keratoconus should be found. Chronic and low grade xerophthalmia due to suboptimal intake of vitamin A may be more prevalent than is realized. The corneas may be weakened by intermittent attacks, and permanent stretching of the tissues may take place without obvious vascularization or other pathologic sign. Keratoconus in European countries is rare, myopia and myopic astigmatism are common; their production may be due to the same mechanism. The authors do not suggest that keratoconus is due in every case to avitaminosis A but they do know that, owing to the lack of vitamin A, ocular lesions can be produced experimentally in 100 per cent of rats and keratoconus with comparative ease. In the human child exactly similar lesions of the eyes going on to perforation are produced by vitamin A deficiency. Therefore it does not appear unreasonable to them that if a child is receiving a diet deficient in vitamin A the corneas and scleras may become weakened and unable to withstand the increased pressure when the child is eventually given an adequate diet. Keratoconus will probably not develop in the child but myopia or myopic astigmatism will, if the pathologic changes in man are comparable to those of the rat.

British Journal of Radiology, London

12: 257-320 (May) 1939. Partial Index

Three-Dimensional Radiation Distributions. J. Honeyburne, L. F. Lamerton, D. W. Smithers and W. V. Mayneord.—p. 269.
The Work of the Sydney Hospital Radium Clinic from 1911 to 1938 and Analysis of the Cutaneous Neoplasms Treated. Sylvia Bray.—p. 303.
*Skin Eruption Caused by X-Ray Therapy on Endocrine Glands. Sylvia Bray.—p. 312.

Cutaneous Eruption from Roentgen Therapy of Endocrines.—Bray discusses the occurrence of seven cases of an unusual cutaneous eruption produced during and shortly after the roentgen treatment of ovaries, thyroids and pituitary glands. These eruptions have been encountered only during the last eight years, that is since therapeutic x-rays, produced by a voltage of 190 kilovolts and over, with filters of not less than 2 mm. of copper, have been in use. The author knows that to attribute this cutaneous eruption (an itchy, slightly raised papular red rash) to a disturbance of the hormone balance by the short x-rays on one of the components of the endocrine system is a big assumption; but it seems justified to her, as the condition has not appeared in any case in which an endocrine gland was not being subjected to irradiation. The time of the appearance of the rash has well defined limits: between three and one half to eight weeks after treatment is begun. The distribution is limited to the unexposed parts. The appearance of the rash itself from a dermatologic point of view is also constant, the chief variation being in the size of the papules. None of the patients observed had vesication and none were left with scarring. All the cases apparently responded to local treatment; but this, the author thinks, is closely bound up with the probability that the internal biochemical change causing the rash is of fairly short duration. The small number of cases occurring is rather puzzling when the large number of pelvic cases treated are considered in which the ovaries receive a large dose. There must be other individual factors, as well, which influence the production of the rash. It seems as if an immunity develops, as none of the patients had the rash a second time.

British Medical Journal, London

1: 1015-1070 (May 20) 1939

Disorders of Small Intestine. E. Spriggs.—p. 1015.
Industrial Incapacity and Modern Medicine. D. Stewart.—p. 1019.
*Healing by Natural Resolution in Pulmonary Tuberculosis With or Without Cavitation. P. Ellman.—p. 1024.
Causal Organism of South African "Sandworm" Eruption: Preliminary Note. N. L. Murray—p. 1026.
Observations on the Performance of Blood-Group Tests. G. L. Taylor and Elizabeth W. Ikin.—p. 1027.

Natural Healing in Pulmonary Tuberculosis.—Under present day conditions clinical observations can receive confirmation by x-ray examination of the chest. Ellman states that clinical and x-ray observations of the chest show that any fresh tuberculous, pneumonic or bronchopneumonic process of the recent exudative type may actually heal by resolution in a manner comparable to that observed in lobar pneumonia and bronchopneumonia. However, the time factor for resolution in a tuberculous pulmonary lesion is much longer, requiring perhaps months instead of days or weeks of complete bed rest. Fresh exudates occur more particularly in the first three or

four decades of life, are largely confined to the upper lobes of the lung and tend at the onset to exhibit a general constitutional rather than a local symptomatology. In an extremely acute case massive necrosis may take place and the question of resolution does not then arise; but adult phthisis in its early manifestations is, so far as the lung is concerned, principally a localized disease and this enables the body to put up some resistance to the invasion of the bacillus. Prolonged rest, both general and local, will assist the maintenance of this naturally acquired immunity. Many lesions seen roentgenologically may closely simulate those of a tuberculous exudate. Therefore the process of their natural resolution should not be attributed to tuberculous lesions when, in fact, they may be due to such conditions as atypical resolving pneumonia of an acute, subacute or chronic nature, to suppurative pneumonitis and the like. There is a type of recent exudative pulmonary tuberculosis which will heal by natural resolution and produce permanently good results when well supervised absolute bed rest under the strict discipline of the sanatorium regimen can be obtained. Serial clinical and x-ray investigations should accompany this treatment, for, when it is apparent that spontaneous healing is taking place, bed rest with x-ray control should be encouraged; if, on the other hand, there is no progress or there is retrogression, collapse therapy can be induced. Early recent exudative lesions should in the first instance be given an opportunity of healing by simple methods with careful x-ray control. Immediate collapse therapy is not always justifiable. An artificial pneumothorax that is induced prematurely may prove to be contraselective and may require yet further intervention, culminating finally in a thoracoplastic operation. On the other hand, in selected chronic bacilliferous cases surgical intervention may be the life saving factor. Surgical intervention is, after all, merely another means of reinforcing rest of the lung; therefore if complete and prolonged rest can, unaided, produce the desired results it should be the initial method of choice. The foregoing principles of the healing of noncavitating lesions apply also to cavitation, and, as a rule, retrogression of the lesion and healing of the cavities accompany each other. Generally, recent exudative cavities respond more favorably to strict bed rest. The older and more productive that a cavity is the more likely is it that some form of surgical intervention will be necessary. At the beginning, most cavities should be given the opportunity of responding to bed rest. Only if the lesion is retrogressing or remains stationary should collapse therapy be considered. The evolution of cavities is dependent on the state of the draining bronchus. Coryllos and Ornstein state that complete closure of the draining bronchus of a cavity with obstructive atelectasis is the only means by which cavities can heal, no matter what the size of the cavity or the nature of its wall. They classify cavities according to the closure or patency of the draining bronchus. The theory of the patent bronchus permitting free circulation of air into the cavity, and hence an adequate supply of oxygen favorable to the growth of tubercle bacilli, appears to be rational and enables one to postulate that cavities are either open or closed and that the latter, accompanied by bronchial obstruction, tend to heal.

2: 1071-1122 (May 27) 1939

Control of Disease. Horder.—p. 1071.
Zinc Protamine Insulin in Diabetes: Treatment by One Daily Injection. R. D. Lawrence.—p. 1077.
Vinesthene Anesthetic Mixture. F. F. Cartwright.—p. 1081.
Achlorhydria in Landry's Paralysis. L. V. Roberts.—p. 1084.
Myomectomy in the Pregnant Uterus. R. C. Thomas.—p. 1085.
*Maneuver to Facilitate Abdominal Palpation. C. H. Osborn.—p. 1086.

Abdominal Palpation.—Osborn suggests a method by which it is possible to diminish the voluntary contraction of the abdominal musculature frequently observed in nervous and apprehensive patients during abdominal palpation. The method is also valuable in those patients in whom, owing to pronounced lumbar lordosis or to increased intra-abdominal tension, the abdominal wall is tense and stretched. With the patient in the supine position, with the arms at the sides and the head and neck comfortably elevated on a pillow, the lower limbs are drawn up by semiflexing the hip and knee joints, and the examination then proceeds. Relaxation of any muscle is obtainable only by approximation of its points of attachment. The two major attachments of the abdominal group of muscles are the lower ribs at the cranial end and the bony and ligamentous structures of the anterior aspect of the pelvis at the caudal end. Approximation of these points will automatically relax these muscles. This is not sufficient, in most instances, to make any appreciable difference in the tenseness of the abdominal wall. In order to accomplish this object it is necessary to rotate the pelvis on a horizontal axis which passes through both hip joints. This entails movement of the anterior aspect of the pelvis to an appreciable extent in a cranial direction and also some flattening of the normal lumbar curve. The desired posture may be secured by first placing the patient in the orthodox position, with the knees drawn up and the feet firmly placed, and then asking him to "raise his tail bone 1 inch from the couch." This position can be maintained with perfect ease, and if the hand of the examiner is placed on the abdominal wall while it is being assumed a noticeable diminution in the amount of muscular resistance will be felt immediately. By this simple maneuver it is possible materially to increase the knowledge obtainable by palpation of the abdomen. Similar relaxation may be obtained by elevating the thorax on pillows or by placing a pillow under the sacrum, or by both these measures, but such steps the author states are not as simple or as effective as the one described.

Edinburgh Medical Journal

46: 369-444 (June) 1939

Significance of Glycosuria. D. M. Dunlop.—p. 369.
Protein in Treatment of Nephritis. J. D. S. Cameron.—p. 386.
Hodgkin's Disease with Cutaneous and Cerebral Manifestations: Case. A. S. L. Rae.—p. 400.
Uncommon Ovarian Tumors: Short Description of Granulosa Cell Tumor, Brenner's Tumor, Disgerminoma and Arrhenoblastoma. E. M. Robertson.—p. 406.
Observations on Virus of Influenza with a View to Elaborating a Simple Diagnostic Test Whereby Its Presence in Respiratory Tract of Man May Be Revealed. W. J. Tulloch.—p. 415.

Journal of Mental Science, London

85: 381-614 (May) 1939

A Century of Psychiatry in the Punjab. C. J. L. Patch.—p. 381.
*Mechanism of the Cardiazol Convulsion. D. J. Watterson and R. Macdonald.—p. 392.
Psychopharmacologic Study of Schizophrenia, with Particular Reference to Mode of Action of Cardiazol, Sodium Amytal and Alcohol in Schizophrenic Stupor. W. P. Berrington.—p. 406.
Affective Sequelae of Convulsant Drug Therapy. J. B. Dynes.—p. 489.
*Undesirable Mental Sequelae to Convulsant Drug Therapy. J. B. Dynes.—p. 493.
Insulin Therapy: Short Review of Work Done in Grangegorman Mental Hospital. J. Dunne and Eveleen O'Brien.—p. 498.
Present Status and Functions of Child Guidance Movement in Great Britain and Its Possible Future Developments. D. R. MacCalman.—p. 505.
Analysis and Treatment of Case of Neurotic Conduct Disorder in Young Child Illustrating Value and Use of Drawing in Child Guidance Technic. H. Edelston.—p. 522.
Meinicke Klarungs Reaction: Development of Improved Test. W. M. F. Robertson and D. B. Colquhoun.—p. 548.
General Paralysis and Its Treatment by Intravenous T. A. B. Vaccine. C. E. Roachsmith and E. S. Stern.—p. 558.
Jakob's Disease: Case. G. Brown and D. Buchle.—p. 562.
Anodontia in Mongolism. D. H. H. Thomas.—p. 566.

Mechanism of Metrazol Convulsions.—Watterson and Macdonald performed experiments to determine whether metrazol, after intravenous injection, has time to reach the central nervous system before the convulsion occurs. They found that after 0.5 cc. of a 2 per cent solution of sodium cyanide is injected intravenously reflex hyperpnea occurs when the drug reaches the carotid sinus. The hyperpnea is quite characteristic, consisting of two or three sudden deep inspirations; it is best seen if the subject relaxes in a semirecumbent position. In these experiments twelve cooperative patients were given intravenously convulsion-producing doses of metrazol mixed with 0.5 cc. of a 2 per cent solution of sodium cyanide. In each case the characteristic hyperpnea due to carotid sinus stimulation occurred a second or two before the convulsion began. The experiments show that the metrazol passes the carotid sinus before the convulsion begins and that the convulsion is clearly demarcated from the reflex hyperpnea. In fact, the short interval following the hyperpnea is probably long enough to allow the metrazol to reach all parts of the brain. Experiments are described which show that under appropriate conditions carbaminoyl choline, acetyl-beta-methylcholine and sodium

cyanide inhibit the metrazol convulsion. Caffeine, administered either orally or intravenously, does not inhibit the convulsion. The conclusion is drawn that cerebral vasodilatation inhibits the convulsive action of minimal convulsion-producing doses of metrazol. It is suggested that the increased rate of cerebral blood flow is the important factor in the inhibition, rather than cerebral vasodilatation by itself.

Mental Complications After Convulsion Therapy.—On the basis of an analysis of the results of convulsive therapy for the psychoses, Dynes declares that aside from complications such as fractures, cardiac arrhythmias and dislocations undesirable mental sequelae may occur in these cases. The physicians in charge and the nursing staff were agreed that the conditions were made worse by convulsant drugs in the cases discussed by the author and that the conduct disorder and deterioration shown was out of all proportion to that ordinarily expected in cases of this type in which no form of special treatment was administered. The undesirable or unfavorable responses were of two types. One group includes three patients who became violent and difficult nursing problems for a long time after receiving convulsant drug therapy and in general showed an aggravation of their mental symptoms. A second group of seven patients showed evidence of memory failure, intellectual deterioration and confusion, not present prior to convulsant drug therapy. Some of the latter were less troublesome from a nursing standpoint, although there were others who showed intellectual impairment and were also more difficult to nurse. These ten patients make up 15 per cent of a series of sixty-eight patients treated by convulsant drugs. Nine of the sixty-eight could be considered complete remissions, twenty were at home improved, while thirty-nine remained unimproved. In these thirty-nine who were unimproved were included the ten who were actually made worse by the treatment. The patients who had complete remissions showed evidence of improvement after from one to four convulsions. Therefore there seems to be no reason why convulsant drug therapy should be continued up to twenty treatments, as irreparable damage may be done to the nervous system. Most of the patients showing adverse mental sequelae had twenty or more treatments.

Journal Obst. & Gynaec. of Brit. Empire, Manchester

48: 201-408 (April) 1939

Plea for Wider Outlook in the Teaching of Obstetrics. J. S. Fairbairn.—p. 201.
*Masked Hypothyroidism as Cause of Amenorrhea. E. C. Dodds and J. D. Robertson.—p. 213.
Pathology of Obstetric Shock. H. L. Sheehan.—p. 218.
Hormone Gynecologic Pathology and Its Clinical Aspects. J. Hofbauer.—p. 232.
Symmetrical Cortical Necrosis of Kidneys. M. J. L. Stening.—p. 250.
Place of Radium in Treatment of Uterine Hemorrhage Due to Non-malignant States. W. Hunter.—p. 261.
Further Developments in Treatment of Kraurosis, Leukoplakia and Pruritus Vulvae. G. L. Foss.—p. 271.
Treatment of Carcinoma of Corpus Uteri with Radon Applicators. W. G. Cuscaden and T. H. Oddie.—p. 289.
Hematometra Following Radium Therapy for Benign Uterine Hemorrhage: Case. A. J. Herring.—p. 301.
Outbreak of Streptococcic Peritonitis in Infants in a Maternity Ward. G. J. Crawford and L. Steat.—p. 309.
Gas Gangrene of Uterus Following Abortion. R. L. Dodds and M. H. Mayell.—p. 313.
Evidence of Fetal Respiration in Utero. T. H. Belt.—p. 316.

Masked Hypothyroidism as Cause of Amenorrhea.—Dodds and Robertson report five cases of secondary amenorrhea resistant to simple substitution therapy. The patients presented none of the usual features of generalized disorders known to cause amenorrhea. Determination of the basal metabolism showed that quite a marked degree of hypothyroidism was present, despite the absence of any of the classic signs of this disorder. Adequate treatment with thyroid extract caused the basal metabolism to rise to normal and this was accompanied by the establishment of normal menstruation. In one case in which the dose of thyroid extract was reduced and the basal metabolism as a result fell below normal, amenorrhea reappeared, but menstruation again returned when an adequate dose of the thyroid extract was given to raise the basal metabolism to normal.

Journal of Physiology, London

98: 431-524 (May) 1939. Partial *Index*

Blood Sugar Variations in Normal and in Sympathectomized Dogs. L. Brouha, W. B. Cannon and D. B. Dill.—p. 431.
Excitability States of Inferior Mesenteric Ganglion Cells Following Preganglionic Activation. D. P. C. Lloyd.—p. 464.
Determination of Histamine in Blood. G. V. Anrep, G. S. Barsoum, M. Talaat and E. Wieninger.—p. 476.
Action of Some Amines Related to Adrenalin: Methoxy-Phenylisopropylamines. J. A. Gunn, M. R. Gurd and I. Sachs.—p. 485.
Effect of Low-Porphyrin Diet on Erythropoiesis and Hemoglobin Regeneration. N. F. Kirkman.—p. 508.

Lancet, London

1: 1139-1192 (May 20) 1939

Insulin and Cardiazol Treatment of Schizophrenia. L. Meduna and B. Rohny.—p. 1139.
Block Dissection for Carcinoma of Cervix. A. Goodwin.—p. 1142.
*Deficiency of Vitamin B_1 in Hookworm Anemia. A. McKenzie.—p. 1143.
The Latter Half of the Life of an Epileptic. A. Hall.—p. 1146.
*Quinine in Myotonia Congenita: Its Antagonism to Prostigmine. Grace Briscoe.—p. 1151.

Vitamin B_1 Deficiency in Hookworm Anemia.—McKenzie reports two cases of hookworm anemia in which a considerable degree of edema was present. Treatment with vitamin B_1 in the form of brewers' yeast and a synthetic crystalline vitamin B_1 rapidly cured the edema after treatment with iron and the provision of a generous diet had failed to do so. The administration of the synthetic vitamin B_1 was followed in both cases by increased diuresis, an action which does not appear to have been recorded from true beriberi. The result of this treatment suggests that the edema which accompanies hookworm anemia is due to a deficiency of vitamin B_1, which is in turn due most probably to loss of vitamins in the blood extracted from the host by the hookworm.

Antagonism of Quinine to Prostigmine in Myotonia.—Briscoe carried out experiments in an effort to determine whether the characteristic depressant effects of prostigmine in normal muscle were antagonized by quinine as they were by curarine. Contractions of mammalian muscle (cat's quadriceps) have been recorded isometrically. She found that quinine, injected intravenously, is antagonistic to prostigmine and synergistic with curarine in its effects on normal skeletal muscle. Quinine produces its effects on muscle both by raising the threshold of the motor end plates and by direct action on the muscle fibers. It is not possible to decide which of these two actions of quinine is the more important in the relief of the rigidity of congenital myotonia until more is known of the cause of this disease. It is suggested that in congenital myotonia there is hyperexcitability to normal amounts of acetylcholine.

Medical Journal of Australia, Sydney

1: 713-746 (May 13) 1939

The Physician, His Life and Times. S. A. Smith.—p. 713.
*Compulsive Grasping, Grasp Reflex, Tonic Innervation and Associated Phenomena. I. M. Allen.—p. 717.
Hormone Basis of Menstrual Cycle. G. S. Adam.—p. 727.

1: 747-784 (May 20) 1939

Sterility. H. C. Callagher.—p. 747.
Experiences in the Investigation of Sterility. K. Wilson.—p. 754.
Malarial Nephritis (Nephrosis) in the Solomon Islands and Mandated Territory of New Guinea. C. S. James.—p. 759.
Bronchiectasis and Visceral Transposition: Report of Case. D. B. Rosenthal.—p. 761.

Compulsive Grasping, Grasp Reflex and Tonic Innervation.—Allen studied the phenomena of grasping and tonic innervation in sixteen cases in which there were cerebral lesions. The observations confirmed the occurrence in the human subject of two groups of phenomena: labile, fully coordinated and sometimes but not always amenable to being brought under voluntary control, and a fixed pattern, arising from a constant stimulus and usually but not always insusceptible of being brought under voluntary control. The first group occurs in response to visual stimulation, to tactile stimulation or to both. Visual stimulation consists in movement toward and the grasping of an object presented at a short distance from the hand. Tactile stimulation is more effective than visual stimulation and the two together more than either of them alone. When completed, it is under voluntary control. At the beginning, however, it is compulsive. Sometimes it is controlled volun-

tarily or at command at the outset; at times it is controlled and then bursts past the control, and at others it appears at once in spite of attempts to control it. It is evidently related to integrations at the cortical level and is at least analogous to the repeated sucking response observed in one patient. The second group arises in response to stretch and appears even when visual and tactile stimulation are impossible. It is observed in the muscles of the limbs, in the hand and foot, and in the jaw. It consists in increase of muscle tone with, in the hand, a grasp which increases as the stimulation continues and, in the jaw, a traplike closure of the mouth and teeth on the stimulating object. It arises primarily and most effectively from stretch of the flexors of the thumb and index finger. It is not prevented by the patient either voluntarily or at command, but in its minor forms the grasp can be stopped and undone at command even though the appropriate stimulation continues. It is evidently operative at a level below that of the cerebral cortex. It appears that the two groups of phenomena cannot be rigidly separated and that they are mutually dependent and interact in the human subject. The position of the patient in space affects the two groups of phenomena; that is, in the lateral position it increases them in the uppermost limb and decreases them in the undermost limb. Both the first and second groups of phenomena appear to interact closely with the righting mechanism or to form an integral part of it. The term "compulsive grasping" appears to be appropriate to the compulsive phenomena forming the first group, "tonic innervation" to those of the second group, and "grasp reflex" to those of the second group in the hand.

Proceedings of Royal Society of Medicine, London

32: 719-852 (May) 1939

*Bacteremia and Oral Sepsis. S. D. Elliott.—p. 747.
Some Observations on Surgical Treatment of Urinary Incontinence. T. Millin.—p. 777.
Radiology of Acute Respiratory Disease. P. Kerley.—p. 791.
Shock Therapy: Plea for Proportion in Psychiatry. I. Skottowe.—p. 843.

Bacteremia and Oral Sepsis.—In his discussion of bacteremia and oral sepsis Elliott concludes that transient streptococcic bacteremias are a frequent sequela to dental extractions especially when the mouth is the seat of severe chronic gingivitis. Bacteria may also gain admission to the blood stream in such cases irrespective of operative procedures and probably as the result, in many instances, of minor degrees of gingival injury such as is produced by biting on a loose tooth. Acute apical infections do not appear to be especially associated with blood infection of this kind; the focus of infection is apparently effectively "walled off" by the associated inflammatory reaction. Of the two factors infection and trauma involved in the production of these postoperative bacteremias, infection appears to be the more important since, when it is marked, even slight trauma to the gums is sufficient to produce invasion of the blood stream. In the complete absence, however, of the type of trauma induced by the "rocking" of a tooth during its removal, extraction may be accomplished without producing a heavy bacterial shower in the blood. Usually these transient bacteremias produce no permanent ill effects, but there is some evidence that, occurring in subjects with abnormal heart valves, they may lead to subacute infective endocarditis. Thirteen cases are reported in which the valvular infection appeared to result from a postoperative dental bacteremia. Such bacteremias may be prevented by the reduction or elimination of infection and trauma. Complete elimination of gingivitis is difficult, although preliminary treatment of the margins of the gums by some measure, such as cauterization, may lessen it and lead to a reduction of the postoperative bacterial shower. Similarly, by avoiding unnecessary manipulation of an infected tooth during its extraction the incidence or degree of blood infection may be decreased.

South African Medical Journal, Cape Town

13: 349-388 (May 27) 1939

Health or National Health Insurance? F. Daubenton.—p. 351.
Financial Implications of Compulsory Health Insurance. H. H. Wolfenden.—p. 359.
National Health Insurance. E. H. Cluver.—p. 365.
Id. J. C. Gie.—p. 368.

Annales de Médecine, Paris

46: 1-88 (June) 1939

*Studies and Reflections on Cleidocranial Dysostosis. R. Debré, M. Lamy and G. Sée.—p. 5.
Roles of Liver in Modifications of Proteins in Suppurative Diseases: IV. Chemical Modifications in Blood and Urines. I. Blitstein.—p. 26.
Pathogenesis of Cyanosis Observed in Course of Antibacterial Chemotherapy with Organic Derivatives of Sulfur. P. Dubost and P. Durel.—p. 56.
Shock Treatment of Typhoid Fever. M. Netousek.—p. 78.

Cleidocranial Dysostosis.—The study of five cases of cleidocranial dysostosis disclosed that the clavicular and cranial malformations are accompanied as a rule by other malformations of the bony structure, among which pelvic malformations are the most frequent with those of the face and spinal column following. In discussing the origin of cleidocranial dysostosis, Debré and his associates state that it is not connected with any infection and in particular with syphilis, that it is not a bone disease of membranous origin, that it is not connected with a malformation or lesion of the uterus or the membranes of the ovum and that it is not the consequence of an oligohydramnios. Cleidocranial dysostosis is a genotypic dystrophy which seems to be transmitted as a dominant mendelian characteristic.

Gynécologie et Obstétrique, Paris

39: 321-416 (May) 1939

Hysterography with Iodized Oil and Remarks on This Mode of Diagnosis. M. Reeh.—p. 321.
Obstetrics, Gynecology and Surgery. A.-P. Ramos.—p. 336.
*Endoscopic and Hormonal Study of Postabortal Placental Retentions. L. Portes, M. Mayer and J. Varangot.—p. 345.
Conservative Surgery in Gynecology: Ovarian Autograft Constituting Last Resource of Conservative Surgery. E. Douay.—p. 355.
Contribution to Experimental Study of Uteroplacental Apoplexy. M. Rivière and P. Pouchard.—p. 364.
Torsion of Healthy Adnexa. J.-A. Phélip and d'Escrivan.—p. 379.
Rachianesthesia in Obstetric Surgery. M. L. Pérez and L. di Guglielmo.—p. 388.
Intramuscular Injections of Ichthammol in Treatment of Inflammatory and Gynecologic Inflammations. K.-P. Levitskaia.—p. 394.

Postabortal Placental Retentions.—Portes and his collaborators observed a number of total or partial placental retentions, which were tolerated for a shorter or longer time after abortion. Each time the clinical circumstances permitted, the authors verified the presence of placental elements in the uterus by endoscopy to remove under visual control fragments of presumably placental or juxtaplacental tissues to make a microscopic examination; they also resorted to biologic determination of the gonadotropic hormones. The endoscopy was carried out according to the method of Segond. It was generally done without anesthesia, because the cervix uteri was permeable in most cases. Without describing all the details of the endoscopy with the aid of Segond's instrument, the authors stress that it is best to utilize, whenever possible, a hysteroscope of large caliber. The biopsies were made under visual control by employing forceps suited to Segond's apparatus. The determination of the gonadotropic hormones was done by means of the usual biologic method. The authors describe their observations on nine women. The placenta appears in the form of mulberry-like masses, red-violet and ecchymotic and surrounded by clusters of disintegrated whitish tissue, which float in the liquid and contrast with the rose colored and normal appearance of the adjoining healthy mucosa. Independently of placental masses there are observable, even in recent and noncomplicated retentions, polypoid processes of the endometrium corresponding microscopically to an infiltration of the stroma by round cells and hemorrhagic exudates and are probably of inflammatory nature. Experiences so far indicate that the hysteroscopy apparently does not reveal the débris which is attached to the uterine horns. On the other hand, the placental tissue which occupies one of the surfaces or the fundus of the body of the uterus is clearly evident. When the hysteroscopy was not immediately followed by curettage they were totally apyretic. The women, thus left in a state of retention, later expelled the retained débris spontaneously, perhaps in the course of the subsequent menstruation. Hysteroscopy is of value because it makes it possible to limit curettage to cases in which placental retention is endoscopically verified. The biologic determination of gonadotropic substances does not seem to supply useful information with respect to

V 19

vitality or even the presence of placental tissue. In eight of nine cases the biologic examination of the urine was negative with quantities below 400 mouse units, and this was so in prolonged as well as in recent retentions. The authors found that the reactions were negative likewise when the curetted placental tissue presented all the histologic aspects of vitality. This fact is perhaps explained by the absence of all vascular connections between the retained placenta and the maternal organism.

Journal de Chirurgie, Paris

53: 737-886 (June) 1939

*Biochemical Investigations on General Reactions of Skeleton After Fracture of a Bone and Physiologic Unity of Skeletal System. J. Roche. —p. 737.
Orbital and Orbitocranial Osteomas: Their Ablation by Transfrontal Method. D. Bagdasar, G. Schnitzer and F. Bagdasar.—p. 746.
Transcutaneous Belting in Treatment of Cuneiform Fractures of Upper Extremity of Tibia. J. Creysmel, M. Bérard and M. Dargent.—p. 758.
Personal Restorative Technic of Section of Flexor Tendons of Fingers. R. Monsaut.—p. 768.

Reaction of Skeleton After Bone Fracture.—Roche and his collaborators studied the phosphatasic activity of the skeleton after the fracture of a bone. Experiments were made on adult pigeons and rats. They concerned the phosphatasic activity of the epiphysial and diaphysial regions of the fractured bone and of the intact homologue. It was found that the callus of the fractured bone generally presents the same phosphatasic activity as do the diaphysial and epiphysial regions of this bone. The considerable augmentation of the enzymatic activity which follows the fracture becomes manifest a few days after the traumatism and well before the callus is formed. The intact bones of an animal with a fracture present an augmentation of their phosphatasic activity simultaneously with those observed in the different regions of traumatized bone. The author further takes up the general modification of the composition of the skeleton after fracture of a bone. He found that a long bone with fractured diaphysis (humerus of pigeon or femur of rat) presents in the epiphysial or diaphysial regions successive modifications of composition. These modifications, which are greater in the immediate surroundings of the lesion, evolve simultaneously in all parts of the organ. They are characterized at first by a demineralization of all parts, followed by a more or less complete restoration of the losses. The intact portions of the skeleton present qualitatively the same modifications of the composition. These modifications are less intense in the normal parts than in the traumatized parts, but they can always be observed. The author reaches the conclusion that the osseous system constitutes a biologic entity in which the behavior of each anatomically individualized part is under the influence of general mechanisms regulating the development, the composition and the physiologic activity of the skeleton in its entirety.

Revue Française de Pédiatrie, Paris

15: 1-116 (No. 1) 1939

Chronic Colonopathies of Children. G. de Toni.—p. 1.
Practical Clinical Methods for Determining Phosphorus Content of Blood and Phosphatase of Plasma by Employing Capillary Blood. E. Josefson.—p. 37.
Clinical Forms of Infection with Spirochaeta Icterohaemorrhagiae in Children. L. Torres Barbosa.—p. 51.
*Prolonged Polyglobulism After Birth. J. C. Schippers.—p. 102.

Prolonged Polyglobulism After Birth.—Schippers first reports the clinical history of a child who was brought to the hospital eight days after birth. The child nursed poorly; its general condition was unfavorable and it was cyanotic. During the night before hospitalization it had had convulsions, and an intracranial process was thought of. The hemoglobin content and the erythrocyte count were high. A spontaneous hemorrhage took place into the left eyelid and this was later followed by the development of an abscess, which was incised and yielded a large amount of pus. During this time the hemoglobin content and the erythrocyte count remained high. Inhalation of oxygen was instituted and gradually the polyglobulism and the high hemoglobin values disappeared. Follow-up examinations later revealed that the blood remained normal and that the physical development of the child advanced normally, but the mental development was retarded. This case raises the question whether a connection exists between polyglobulism and defects of the brain. After pointing out that polyglobulism occurs also during certain congenital cardiac defects generally resulting from insufficient oxygenation of the blood, and after saying that there are also cases of idiopathic familial polycythemia, the author says that the literature contains numerous reports on the appearance of polyglobulism as the result of a pathologic process in the brain. It is doubtful that the cerebral anomalies are the cause of the polyglobulism, because the status of the blood has become normalized whereas the cerebral defect remains. When the polyglobulism is primary, the cerebral disorder can be considered as a result of thromboses of certain cerebral vessels. After citing several authors who have described thromboses provoked by polyglobulism, Schippers describes several other case histories of prolonged polyglobulism after birth. He says that Baar and Stransky attribute it to a hyperactivity of the bone marrow but that signs of hyperactivity of the bone marrow were apparent in none of his cases. He regards as the most natural explanation a retardation or an imperfection of the hemolysis, which commences immediately before birth and which is noticeable during the first days of life. The fetus suffers from an insufficiency of oxygen, and when respiration begins the erythrocytes disappear under the influence of the abundant supply of oxygen. The change of hemoglobin into bilirubin may provoke the appearance of icterus neonatorum. The author considers it noteworthy that none of his patients with prolonged polyglobulism presented this form of icterus. Moreover, their polyglobulism disappeared after the administration of oxygen. The fact that hemolysis begins already before birth suggests that other factors besides the oxygen supply after birth play a part. The author observed in two of his patients temporary hypertension and trembling. These symptoms occur during disorders in or near the sympathetic centers. The author thinks that one of the factors retarding the hemolysis should perhaps be searched for in this region.

Revue Méd.-Chir. des Maladies du Foie, Paris

14: 161-224 (May-June) 1939

Indications and Contraindications to Splenectomy. J. Rieux and C. Gernez.—p. 161.
*Relation Between Nitrogen of Urea and Nitrogen of Amino Acids of Blood as Mode of Hepatic Exploration in Cardiopathies: Modification of This Relationship in Course of Tonicardiac Treatment. S. Stefanovic and L. Jovanovic.—p. 207.
Abscess of Liver Coexistent with Cystic Disease of Pancreas. P. Huard and A. Bigot.—p. 216.

Urea and Amino Acid Nitrogen in Cardiopathies.—Two factors induced Stefanovic and Jovanovic to study the relation between the nitrogen of urea and the nitrogen of the amino acids in the blood of patients with cardiopathies. The first one is the modification of the hepatic function during cardiopathies. Under the influence of the venous stasis, the hepatic volume increases; the dilated vessels compress the hepatic cells and impair their functions. The degree of impairment depends on the duration of the cardiac compensation. If the cardiopathy is recent, the impaired hepatic function can be favorably influenced by treatment with cardiac tonics. On the other hand, if anatomic lesions of the liver result from prolonged stasis, cirrhosis develops and the impaired function can no longer be rectified. The second factor concerns the role of the liver in the protein metabolism. Under normal conditions the major portions of the amino acids carried by the portal blood are transformed by the liver into urea. Only a small portion of the amino acids passes through the liver unchanged and with the nitrogen of urea and the other nitrogen compounds of the blood forms the nonprotein nitrogen. In studies on these two factors, the authors decided to investigate the proteolytic function of the liver in patients with cardiopathies at the beginning, during and at the end of the treatment with cardiac tonics. In determining the ratio between the nitrogen of urea and the nitrogen of amino acids, they found that there is a diminution of the ratio at the beginning of the treatment; that under the influence of cardiac tonics it increases progressively and that at the end of the treatment it is normal in all cases in which there was no ureal retention, because of renal venous stasis, and in which the liver was not cirrhotic. There is a progressive augmentation of the ratio in the course of treatment and a ratio below the normal at

the end in all cases in which there is initial cardiac cirrhosis. If there exists only a temporary lesion of the kidneys at the end of the venous stasis, the ratio at the beginning is higher than normal because of the ureal retention. It returns later, under the influence of the treatment, after a phase of a pseudonormal ratio and a phase of decreased ratio, to a normal level. In patients with cardiorenal or renicardiac disorders the ratio remains, in spite of treatment, always higher than normal, because of the permanent retention of the urea. It diminishes only slightly in the course of the treatment.

Schweizerische medizinische Wochenschrift, Basel

69: 513-548 (June 10) 1939. Partial Index

Therapeutic Indications of Vitamin B_1. A. Vannotti.—p. 518.
Diabetes, Angina Pectoris and Insulin Therapy. G. Bickel.—p. 520.
*Treatment of Arterial Hypertension by Irradiating Carotid Sinus with Short Waves. A. Delachaux and G. Schneider.—p. 522.
*Action of Embryonal Cardiac Hormone. B. Purjesz and A. Tószöghy.—p. 523.
Therapeutic Experiences with Female Sex Hormones. R. Wenner and K. Joël.—p. 524.
Treatment of Menstrual Disturbances with Ovarian Hormones. F. Ludwig.—p. 529.
Carotid Sinus Syndrome: Its Clinical Significance and Its Therapy. P. H. Rossier.—p. 531.

Irradiation of Carotid Sinus in Hypertension.—Delachaux and Schneider, on the basis of their observations, conclude that the treatment of hypertension by irradiation of the carotid sinus with short waves can be used for ambulatory treatment. They give three treatments a week for a period of from two to three weeks. They obtained improvement in fifteen of their thirty-three cases when the usual medicinal methods had failed. The best results were obtained in the patients with arteriosclerosis and essential arterial hypertension. In generalized arteriosclerosis with hypertension, however, the results were less frequent and less clear. Finally, the patients with chronic nephritis reacted only slightly to the irradiation. In essential hypertension and in arteriosclerosis the patients experience a sensation of well-being at the same time that a greater or lesser decrease takes place in their arterial tension, whereas the patients with chronic nephritis and often also those with generalized arteriosclerosis have disagreeable sensations and slight fluctuations in blood pressure. The method is contraindicated in chronic nephritis, asystole and thyroid disturbances. If generalized arteriosclerosis is accompanied by hypertension the short wave treatment of the carotid sinus can be tried, but if the reactions after the first irradiations are disagreeable it should be discontinued.

Action of Embryonal Cardiac Hormone.—Purjesz and Tószöghy point out that Miko and Törö produced from the hearts of animal embryos a hormone which exerts a specific action on the cellular nucleus of the cardiac muscle. The hearts are obtained at an early stage of development, that is, at a time when no nervous elements have as yet developed in the heart. This cardiac hormone apparently counteracts the factor that seems responsible for the degeneration. By reestablishing normal amitosis, the hormone effects regeneration. Purjesz and Tószöghy tried this hormone on animals and later on patients. They gave the hormone simultaneously with diphtheria toxin to a group of rabbits; to another group they gave only the diphtheria toxin, and a third group of controls was left untreated. It was found that, when the animals which had been given only toxin were weak and stuporous, those which had been given also heart hormone showed almost the same behavior as the controls. The symptoms of the animals as well as the postmortem observations indicate that the hormone is capable of preventing the lesions of the cardiac muscle which are produced by the toxin of diphtheria. The authors further tried the hormone on fifty-six patients the majority of whom had myodegeneration of the heart but some of whom had myocarditis or angina pectoris. The hormone was administered by intramuscular or subcutaneous injection in quantities of from 2 to 4 cc. daily for periods of from two to four weeks. After reporting several cases the authors say that in most cases the former complaints disappeared rapidly. Physical examination usually revealed considerable improvement, but no changes appeared in the electrocardiogram. Further, the authors administered the hormone in the form of tablets to thirty-four patients with diphtheria (mainly children). Disturbances in the cardiac muscle developed in only two patients and these recovered. The authors reach the conclusion that the cardiac hormone is an effective therapeutic agent for myocardial disorders.

Quaderni di Radiologia, Belluno

3: 309-410 (No. 4) 1939. Partial Index

Familial Cooley's Disease: Two Cases. D. Mirceli and O. Brunelli.—p. 309.
*Tuberculous Hilitis in Adolescents and Adults. F. Cucchini.—p. 328.

Tuberculous Hilitis.—Cucchini reports eight cases of acute tuberculous hilitis in adolescents and adults. In all cases reported by the author (as well as in those of the same condition which have been reported in the literature and are now reviewed by the author), the onset of the disease is acute and the symptoms are similar to those of typhoid. The disease develops immediately after a physical effort or after an exaggerated exposure of the patient to the sun. Symptoms showing involvement of the respiratory tract appear late in the evolution of the disease. The x-ray examination of the thorax shows the presence of a large adenopathy at the hilus of the lung. The roentgenograms show evidences of a previous hilar or perihilar tuberculous infection. The disease is either a reinfection with selective localization at the hilus or an aggravation of hilar tuberculosis. The evolution depends on whether or not it remains circumscribed (up to complete disappearance) to the hilar lymph nodes or else it involves the collateral pleura and collateral parenchyma of the lung. As a rule the disease remains at the hilar lymph nodes and has a benign evolution to recovery of the patient as the roentgenogram shows favorable modifications of the hilar enlargement. Collateral exudative pleuritis and collateral interlobar fissuritis may complicate the disease but regularly they regress after a certain long period of a benign evolution, unless parenchymal infiltrations develop simultaneously. The diagnosis is made from the character of the roentgenogram as described in association with the given clinical symptoms. In the group of patients reported by the author the disease followed a benign evolution without complications in the four patients who had treatment early in the disease. Collateral exudative pleurisy in two cases and interlobar fissuritis in one case complicated the disease, which followed a benign evolution to complete recovery of the patients in all cases but two in which infiltration of the lung parenchyma developed.

Stomatologia Italiana, Rome

1: 411-508 (May) 1939. Partial Index

*Influence of Vitamin C on Coagulation of Blood in Relation to Clinical Evolution and Treatment of Gingival Hemorrhages. G. Fasoli and O. Hoffer.—p. 413.
Scurvy and Pathology of Dental Apparatus in Adults. M. Nicolò.—p. 462.

Vitamin C and Coagulation of Blood.—Fasoli and Hoffer obtained satisfactory results from the administration of vitamin C in the treatment of acute hemorrhagic gingivitis. They observed the time of coagulation of the blood of ten patients who were suffering from acute hemorrhagic gingivitis and had the vitamin C treatment. The patients had a daily allowance of 0.03 or 0.04 Gm. of vitamin C, which was administered by the oral route up to complete disappearance of the inflammation and of the hemorrhage, which took place in from five to eight days. The time of coagulation of the blood was determined before and one day after administration of the first dose of vitamin C and again after completion of the treatment. The determinations of the coagulation time were made on the gingival blood. The authors found that the treatment controls the disease. The time of coagulation of the blood is almost unchanged after a clinical recovery of the patient has taken place. The authors explain the apparently conflicting results by means of the following pathogenic interpretation: A general tendency to the development of hemorrhages (observed in hemophilia and similar conditions) is in pathogenic relation with both a condition of hypo-avitaminosis C and an alteration of the time of coagulation of the blood. Local hemorrhagic conditions probably depend on disturbances of the local capillaries. The vitamin C treatment controls the general hemorrhagic tendencies by controlling hypo-avitaminosis C and by regulating the time of coagulation of the blood, whereas it controls the local hemorrhagic disorder by making normal the nutritional conditions and resistance of the capillaries without interfering with the time of coagulation of the blood.

Archiv für Kinderheilkunde, Stuttgart

117: 1-80 (May 23) 1939

Various Forms of Primary Hemolytic Anemia. G. Fanconi.—p. 1.
Pathogenicity of Coli Bacteria During Childhood. K. Hassmann.—p. 32.
So-Called Aortic Ventricle of Left Side, a Rare Cardiac Deformity: Pathology and Clinical Aspects. G. Crämer and E. Püschel.—p. 45.
Investigations on Hypersensitivity to Serum in Reverse Anaphylaxis Experiment, Its Modification by Vitamin C. F. Szirmai.—p. 56.
*Vitamin B_1 in Alimentary Edemas of Nurslings. A. Kollmann.—p. 64.
Methodical Aspects of Nutrition of Young Healthy Nurslings. E. Müller.—p. 68.

Vitamin B_1 in Alimentary Edemas of Nurslings.—Kollmann says that beriberi, which is caused by a deficiency in vitamin B_1, occurs in two forms, one with and one without edema. In the one with edema the kidneys are not impaired but the water exchange is disturbed. Recently starvation edema as well as the nutritional edemas of nurslings have been explained as a deficiency of vitamin B_1. In view of this fact it seemed logical to use vitamin B_1 as a diuretic and the author decided to investigate to what extent the administration of vitamin B_1 would counteract alimentary edemas in nurslings. The vitamin B_1 was either administered by intramuscular injection or it was given by mouth together with the food. In case of injection the vitamin seemed to act somewhat more promptly than after oral administration. It was administered to eighteen nurslings who were less than 11 months old and all of whom had severe forms of acute or chronic nutritional disturbances, in the course of which severe edemas appeared. The medication with vitamin B_1 resulted in a rapid elimination of the edema. The author gives brief reviews of some of the case histories and says that he tried vitamin B_1 also in edematous conditions of newly born and of prematurely born infants. Here again the edemas subsided, but the action was not quite as prompt as in the first group. The author concludes that vitamin B_1 eliminates edemas in alimentary conditioned edemas of nurslings and has a stabilizing effect on hydrolability.

Beiträge zur klinischen Chirurgie, Berlin

169: 337-512 (May 31) 1939. Partial Index

Prognosis and Operation for Cancer of the Breast. O. Thies.—p. 337.
The Functioning Cascade Stomach. W. Nell.—p. 380.
Question of Electroresection of Prostate Gland. K. Huchzermeyer.—p. 389.
Results of Operations on Split Palate. K.-E. Herlyn.—p. 397.
Hereditary Relationship of Harelip and Split Palate to Other Body Malformations, in Particular to Those of the Vertebral Bones. C. H. Schröder.—p. 402.
*Cranial Injuries. D. Kulenkampff.—p. 414.

Cranial Injuries.—For the sake of clarity in the discussion of the injuries to the brain, Kulenkampff limits himself to the terms concussion and contusion. Concussion is manifested by a brief period of loss of consciousness frequently associated with vomiting, and a headache which disappears in the course of a few hours or a few days. The lumbar puncture alone can determine whether tearing of the cerebral blood vessels has taken place. In contusion there is trauma of the brain tissue causing swelling and rise in the intracranial pressure. As a rule there is blood in the cerebrospinal fluid, the pressure of which rises with the gradual development of the reactive swelling of the brain. The rise in the pressure of the cerebrospinal fluid makes it possible in many instances to estimate the compensatory capacity as expounded by Kocher and by Cushing. Two cases are cited in which the cerebrospinal fluid pressure equaled 400. In the first case removal of 5 cc. reduced the pressure to 200, while in the second it was necessary to remove 10 cc. to bring it down to 200. The compensatory capacity in the first case was more pronounced than in the second. The anatomic structures involved in the compensatory phenomenon are the sinuses, the veins, the ventricle system of the brain and the numerous large lymph spaces on the one hand, and the development of the cranium and the constitutional type of variations of the mentioned anatomic structures on the other. For the consideration of the intracranial pressure the anatomic division of the cranial cavity into three parts is confusing; the author prefers to speak of the anterior and posterior areas of pressure. Repeated lumbar punctures are essential for the recognition of the type of injury and therapeutic indications. The fear of renewed hemorrhage as the result of lowered pressure is without foundation. The numerous symptoms resulting from cranial injuries are principally the result of inadequate regulation of the circulatory systems. This is demonstrated by the immediate improvement in some of the cases brought about by one or two late spinal punctures. The author believes that the number of late complications could be materially lowered by continuing the original treatment to the point of restoring the patient to full working capacity.

Klinische Wochenschrift, Berlin

18: 733-764 (May 27) 1939. Partial Index

Luminescence Microscopy in Behavior of Vitamins in Living Organism. A. Hirt and K. Wimmer.—p. 733.
Analysis of Organs in So-Called Genuine Lipoid Nephrosis of Children. M. Debusmann and A. Leinbrock.—p. 740.
Takata Test in Pulmonary Tuberculosis. F. E. Schmengler.—p. 742.
Pathologic Physiology of Dilatation of the Bile Ducts. P. L. Mirizzi.—p. 745.
*Significance of Friedman's Test in Diagnosis of Extra-Uterine Pregnancies. V. Dubrauszky and S. Martzy.—p. 748.

Friedman's Test in Diagnosis of Extra-Uterine Pregnancies.—Dubrauszky and Martzy report the use of Friedman's test in forty-five cases of extra-uterine pregnancy of a chronic nature, with forty positive and five negative reactions. To determine the usefulness of this test the patients were divided into three groups. In group 1 (twelve patients) reaction took place within seven days, in group 2 (fifteen patients) between seven and fourteen days and in group 3 (eighteen patients) after fourteen days. Group 1 showed a positive reaction in all cases, group 2 in fourteen and group 3 in fourteen. In order to ascertain the reason for the negative reactions the authors investigated the microscopic condition of the chorion and discovered that as long as the chorionic elements, or a great many of them, were alive and connected with the maternal organism the reactions were positive (two adverse instances). The authors also applied Friedman's test in 106 cases in which the previous history of the patient and the clinical examination invited the suspicion of an extra-uterine pregnancy. The negative reaction of the test was confirmed by the clinical developments. In four of five other cases the positive reaction of Friedman's test was also clinically corroborated. In twenty-four cases of acute pathologic conditions Friedman's test was not employed. The clinical diagnosis was followed at once by operative intervention. The authors infer that Friedman's test has no significance in acute conditions, especially as there is no time to apply it. The authors summarize their conclusions in the statements that Friedman's test has diagnostic value only in cases in which chronicity develops if a possible extra-uterine pregnancy is excluded, but even in these cases reaction may be regarded merely as one of the important diagnoses and does not dispense with the usual clinical and laboratory tests.

Münchener medizinische Wochenschrift, Munich

88: 801-840 (May 26) 1939. Partial Index

Treatment of Cervical Myomas and Cystic Ovarian Tumors During Delivery. C. Holtermann.—p. 805.
*Icterus in Scarlet Fever. Wisch.—p. 808.
Diseases of Bursae and Their Treatment. H. H. Westermann.—p. 810.
New Experiences with Causal Therapy of Asthma and Hay Fever by Means of Percutaneous Hormone and Protein Therapy in Combination with Autohemotherapy. R. Koschade.—p. 817.
Aminoacetic Acid Therapy of Torpid Crural Ulcers That Develop in Progressive Muscular Dystrophy. S. von Pastinszky.—p. 818.

Icterus in Scarlet Fever.—Wisch says that, although icterus has become rare as a complication of scarlet fever, he recently observed two such cases. The first patient was a man aged 29 and the second a boy aged 8. Neither patient had previously had hepatic or biliary disturbances. In the first case, icterus and hepatic impairment appeared during the first week of the scarlet fever, apparently simultaneously with the exanthem. All symptoms of the hepatic impairment disappeared in little more than eight days. It is noteworthy that, as the icterus subsided, a typical scarlatinal rheumatoid appeared, which likewise disappeared in from seven to eight days. In the second case the icterus developed during the second week of the scarlet fever, that is, during the stage of defervescence, and was accompanied by acute dyspeptic symptoms. It is of interest that it followed a cervical lymphadenitis and that it likewise disappeared after ten days. In the first case the successive appearance of the icterus and the doublelessly allergic rheumatoid indicated an allergic genesis of the icterus and of the causal hepatic disorder. Moreover, the rapid cure of the rather severe icterus indicated this pathogenesis in both cases. At any rate,

the benign and rapid course of the hepatic lesion and of the icterus excluded the accidental concurrence of scarlatina with infectious icterus (Weil), with a severe cholangitis or hepatitis of bacillary origin or with catarrhal icterus. In the second case the allergic character of the icterus was moreover indicated by its appearance during the nonfebrile period and immediately following a benign cervical lymphadenitis. The author concludes that the two cases of icterus during scarlet fever belong to the group of anaphylactic or allergic manifestations which are elicited by the toxin of scarlatina. It is important to know that the icterus which develops during the first to third week of scarlet fever is generally not a malignant but a benign complication, which is followed by rapid recovery.

Zeitschrift f. Geburtshülfe u. Gynäkologie, Stuttgart

119: 1-132 (May 12) 1939. Partial Index

Physiologic Loss of Weight in the Newborn. H. Rusch.—p. 1.
*Roentgenologic Diagnosis of Hypermaturity of Fetus. K. Stampfel and E. Tscherne.—p. 31.
Terminology and Examination of Pregnancy Occurring in Anemia. A. Alder.—p. 44.
Intracranial Hemorrhages in Nurslings and Premature Births. H. Koch.—p. 52.
Gynecologic and Obstetric Significance of Thrombopenic Purpura. J. Batizfalvy.—p. 65.

Roentgenologic Diagnosis of Hypermaturity of Fetus.—Stampfel and Tscherne say that hypermaturity of a fetus is frequently estimated on the basis of length and weight. However, since children born at term are occasionally abnormally large and since hypermature infants are not always of excessive size, length and weight have only a limited value in the estimation of hypermaturity. For this reason it has been suggested that the maturity of the infantile skeleton be selected as the basis of the estimation of hypermaturity. After reviewing the literature on the skeletal signs of hypermaturity the authors describe their own roentgenologic studies on ninety infants (forty-five girls and forty-five boys) who were born at term and on twenty-two who are carried beyond term. Attention was given to the existence of nuclei in the coracoid process, the upper epiphysis of the humerous, the carpus, the lower epiphysis of the femur, the upper epiphysis of the tibia and the ankle joint. The authors found that the presence of certain nuclei does not necessarily indicate hypermaturity, because the nuclei in question, such as the median humeral nucleus, the nucleus of the coracoid and the nuclei of the carpus are found also in infants who are born at term. The size of certain nuclei, however, is of considerable significance for the determination of hypermaturity; the proximal tibial nucleus and the median humeral nucleus are of great importance in this respect. A proximal tibial nucleus with a diameter of at least 7 mm. and a median humeral nucleus with a diameter of at least 5 mm. was found only in hypermature infants, so that, if these nuclei reach the aforementioned sizes, hypermaturity can be diagnosed. On x-ray exposures of fetuses who are still in utero, the authors' demonstration and the determination of the size of the proximal tibial nucleus is possible even through the abdominal walls and thus it is a valuable sign that the pregnancy has passed beyond the normal term.

Zeitschrift für Hygiene und Infektionskr., Berlin

121: 559-662 (May 10) 1939. Partial Index

Studies on Allergy: Action of Weather on Experimental Bronchial Asthma. R. Preuner.—p. 559.
Determination of Carbon Dioxide in Mixtures of Air and Gas. H. Eyer.—p. 604
*Investigations on Action of Indirect Method of Chlorination of Water in Swimming Pools. H. Dold and E. Remy.—p. 624.
Action of Bactericidal Substances on Tubercle Bacilli of Human and Bovine Types: Experiments with Bases, Salts, Esters and Some Indifferent Compounds. E. Haller.—p. 633.
Epidemiology and Social Hygiene of Leprosy with Special Consideration of Conditions in Philippine Islands. C. M. Hasselmann.—p. 649.

Chlorination of Water in Swimming Pools.—Dold and Remy say that for the chlorination of water in swimming pools either the direct or the indirect method of chlorination is employed. In the indirect method the water is likewise mixed with chlorine gas. However, in order to remove the free hydrochloric acid which develops, the mixture is led over a layer of marble before it is added to the water in the swimming pool. In this process there is formed calcium hypochlorite, the ion of hypochlorite assuming the active role. After citing the chemical changes that take place, the authors stress that in the indirect method of chlorination the development of free hydrochloric acid is excluded and the subsequent appearance of free chlorine is avoided. Water which is chlorinated in this manner does not have the odor of free chlorine and is practically odorless. The authors made bacteriologic tests on the water of a public swimming pool which was chlorinated by means of the indirect method. The control tests covered a period of ten months. The specimens of water were taken at a considerable distance from the fresh water intake at a depth of approximately 1 meter and at a time when the pool was used by a considerable number of persons. The bacteriologic examination proved that as regards the number of micro-organisms the water was satisfactory; 10 cc. and probably larger quantities were free from Bacterium coli. Chemical tests revealed that the degree of pollution was slight, in spite of the extensive use of the swimming tank. This may be partially due to the chlorination, which influences certain indicators of pollution (ammonium, nitrite), but it is probably chiefly due to the continuous intake of fresh water. Complaints about cutaneous irritation by chlorine have become less frequent since the introduction of the indirect method of chlorination. Persons with sensitive eyes still complain occasionally about irritation; however, it is difficult to determine to what extent these complaints are merely due to suggestion. Conjunctivitis due to bathing water is no longer observed.

Zeitschrift für klinische Medizin, Berlin

136: 167-310 (May 15) 1939. Partial Index

*Present Status of Chemotherapy of Bacterial Infections. G. Domagk.—p. 167.
Fat Resorption of Transduodenal Nutrition by Means of a Tube. F. V. Kepp.—p. 200.
Lumbago and Sciatica. J. E. W. Brocher.—p. 203.
Determination of Epinephrine in Arterial Human Blood Plasma Before and After Intravenous Injection of Insulin. C. Giordano and P. Zeglio.—p. 213.
Epinephrine Leukocytosis as Functional Test of Leukopoietic System. C. H. Behr.—p. 219.
Hormonal Compensation in Male Castrates. H. Zahler.—p. 232.
Lymphogranulomatosis with Especial Consideration of Primary Manifestations. K. Heider.—p. 240.
Atypical Anemias. W. Tischendorf.—p. 258.

Chemotherapy of Bacterial Infections.—Reviewing the present status of chemotherapy of bacterial infections, Domagk first takes up the chemotherapy of experimental streptococcic infections and of other experimental infections and then discusses the action mechanism. Experiments indicate that the sulfanilamides are useless in the entirely hopeless cases in which there is no longer any power of reacting, that early treatment with large doses is more effective than late treatment with small doses and that a change in the cocci is always the primary factor and the phagocytosis by leukocytes, monocytes and histocytes the secondary factor in the therapeutic action of the sulfanilamides. Domagk further discusses the anatomic factors that play a part in the hemotherapy of streptococcic infections and here again he stresses that it is advisable to give large doses for three or four days. If such medication has no effect it is useless to continue the treatment, because the micro-organisms are probably resistant to the sulfanilamide. In severe cases and particularly in those in which the micro-organisms enter tissues with slight blood content, such as tendons and joints, it is advisable to administer the sulfanilamide not only by mouth but also by injections. In the last part of his report the author discusses the secondary effects of sulfanilamide. He says that gastric disturbances can be avoided if the tablets are given after meals together with some milk or gruel. Shock is comparatively rare, even after large intravenous doses; because it is probably due to the rapid disintegration of too many cocci, the intramuscular injection should be preferred to the intravenous injection. It has been suggested that agranulocytosis might be elicited by prolonged administration of sulfanilamide; on the other hand, cases of agranulocytosis that were caused by streptococci have been known to be cured by sulfanilamide. Following remarks about the probable pathogenesis of granulocytopenia in connection with sulfanilamide, the author discusses lesions of the hepatic parenchyma. He cites evidence to the effect that the unsuitably prolonged administration of sulfanilamide is the cause of this complication. The urticarial exanthems that may develop as a rule disappear without causing serious damage.

In many cases the complications are the result of excessive dosage. Since prescriptions have been made obligatory for sulfanilamide preparations, indiscriminate use and excessive dosage will become less frequent and so will also the complications.

Zeitschrift f. d. ges. Neurol. u. Psychiatrie, Berlin

165: 1-478, 1939. Partial Index

Birth and Feeblemindedness. K. Hell.—p. 85.
Offspring of Parents with Endogenic Psychoses. G. Elsässer.—p. 108.
Investigations on Population of Higher Than Average Ability: Prognosis Regarding Mental Diseases and Natural Endowments of Children of a Selected Population. H. E. Grobig.—p. 112.
Ear and Nervous System. V. von Weizsäcker. p. 132.
Otogenic Diseases of Brain and Its Meninges. H. Demme.—p. 195.
Hereditary Transmission of Neoplasms of Central Nervous System and Its Meninges. H. Geyer and O. Pedersen.—p. 284.
Psychoses of Pernicious Anemia. H. Büssow.—p. 314.
*Cushing's Syndrome as Initial Sign in Schizophrenia G. Voss.—p. 458.

Cushing's Syndrome as Initial Sign in Schizophrenia.—Voss points out that incretory disorders are not exceptional among patients with schizophrenia but that endocrine syndromes (that is, not just some isolated incretory symptom) have been reported only rarely in cases of schizophrenia. He thinks that an incretory syndrome can be regarded as related to the psychosis only if its first manifestations appear at the time of the onset of the psychosis. He says that it was recently pointed out by Kehrer that patients with Cushing's disease occasionally exhibit impoverishment of the emotional life and hallucinations. All of the five cases of schizophrenia described by Voss exhibited the chief symptoms of Cushing's disease, mainly the characteristic distribution of fat tissues in connection with hypertension. These symptoms are combined in the different patients with other manifestations of Cushing's syndrome; only the striae distensae were never observed. The author gives brief histories and shows photographs of the five patients; in all of them the endocrine syndrome, which always greatly resembled Cushing's disease, appeared together with the first signs of schizophrenia. Symptoms indicating the presence of a hypophysial tumor, however, were never observed. From this the author concludes that the syndrome is connected with the physical disorder underlying schizophrenia. This further supports the repeatedly observed fact that Cushing's syndrome is not necessarily pathognomonic for a basophil adenoma of the anterior lobe of the hypophysis but that other disorders may be the primary factor. It cannot be doubted that, especially in the acute cases of schizophrenia, physical disturbances play a part. In the author's cases it can be assumed that the schizophrenic process involved particularly the endocrine system and elicited the endocrine anomalies that belong to Cushing's syndrome. In all patients the incretory syndrome disappeared a short while after the psychosis became manifest, which indicates that the endocrine disorder may take a rapid course and probably is not identical with the process eliciting the schizophrenia but is only a secondary effect of this process.

Zeitschrift für Tuberkulose, Leipzig

82: 209-272 (May) 1939.

Constitution and Tuberculosis. V. Teschendorff.—p. 209.
Bronchogenic Dissemination in Endothoracic Tuberculosis in Children. R. W. Müller.—p. 214.
*Permanent Results of Collapse Therapy of Pulmonary Tuberculosis. G. Buchedlt.—p. 224.
Tuberculous Infection in Children Between 9 and 12 Years of Age: Contradiction Between Tuberculin Reaction and Roentgenologic Aspects. N. B. Oekonomopoulos.—p. 233.

Collapse Therapy of Pulmonary Tuberculosis.—Bucholdt reports the results of the collapse therapy (exclusive of thoracoplasty) of pulmonary tuberculosis in the patients who were treated at the clinic for tuberculous patients in Jena during the years from 1925 to 1935. He made his follow-up examinations in 1937, that is, from two to twelve years after the beginning of the collapse therapy. The therapeutic results in those who were still alive were estimated on the basis of the presence or absence of tubercle bacilli in the sputum. The collapse therapy was carried out in 297 cases; in seventy-six others it was not employed, although it was indicated either because the patients did not consent to it or because collapse could not be induced on account of pleural adhesions. These seventy-six cases provide a basis of comparison for the therapeutic evaluation of collapse therapy. It was found that of the patients who had been subjected to unilateral pneumothorax 48.5 per cent were free of bacilli from two to twelve years after the collapse therapy; of those who had been subjected to bilateral pneumothorax, 21 per cent were free of bacilli. There were indications that favorable therapeutic results are to a great extent dependent on the long duration of the pneumothorax therapy. Even if the last part of the pneumothorax therapy is ambulatory, this favorable result can be realized. The therapeutic results were most favorable in the patients between 20 and 25 years of age but they were not much less so in those up to the age of 45. Unilateral pneumothorax produced freedom from bacilli in 48.5 per cent of the cases treated; in those in whom, in spite of the same indications, the pneumothorax was not induced, freedom from bacilli was obtained in only 21 per cent. Thus if in a group of patients with pulmonary tuberculosis 100 are cured spontaneously, 230 could be cured by collapse therapy.

Klinicheskaya Meditsina, Moscow

17: 1-106 (No. 4) 1939. Partial Index

Excretory Gastric Function and Its Clinical Significance. P. A. Lurya.—p. 6.
Processes of Autoregulation in Organism. S. M. Leytes.—p. 26.
Liver and Diabetes. L. S. Shwarts.—p. 41.
Clinical Value of Laboratory Tests of Pancreatic Function. B. E. Kogen.—p. 67.
*Combined Medical and Surgical Treatment of Mercury Bichloride Poisoning. N. G. Sadkina.—p. 77.

Mercury Bichloride Poisoning.—Sadkina reports twenty-four cases of mercury bichloride poisoning treated by bilateral decapsulation of the kidneys and a cecostomy. The theories advanced to explain the beneficial effect of decapsulation of the kidneys are (1) formation of vascular channels between the denuded kidney and the surrounding tissue, (2) lowering of the intrarenal tension and (3) effect of removal of sympathetic fibers on the vascular spasm with the resulting improvement in the nutritive and the functional state of the kidney. The earlier the decapsulation, the greater the chance of preventing the aneuria or of shortening its duration after it has developed. Experience at Skliffasovsky Institute suggests that the operation is indicated within the first six hours after poisoning. The rationale of cecostomy is to be seen in the fact that ingested mercury is eliminated principally by the kidneys and by the large intestine. A cecostomy opening is utilized to remove the drug by continued flushing with a weak solution of potassium permanganate. Azotemia increased as a rule during the first days, the urea blood content rising as high as 560 mg. This was always accompanied by a fall in blood chlorides, a diminution in alkali reserve (from 15.7 to 27.7 per cent of carbon dioxide) and manifestations of acute acidosis. The clinical picture of patients treated by decapsulation was milder than that of patients who took a similar dose of the drug but were not subjected to decapsulation. The four fatalities among the patients who were subjected to decapsulation were probably due to a late operation or a weakened organism prior to poisoning. The author concludes that decapsulation and a cecostomy is the method of choice in the treatment of mercury bichloride poisoning. The operation is best performed under spinal anesthesia and at the earliest possible moment. Immediate lavage of the stomach and in the later stages infusion of hypertonic solution of dextrose and of large amounts of 5 per cent sodium bicarbonate are to be employed in a routine manner.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

83: 2203-2312 (May 13) 1939. Partial Index

Multiple Sclerosis and Friedreich's Tabes in One Family. B. Brouwer.—p. 2206.
*Treatment and Prognosis of Acute Hematogenic Osteomyelitis. J. J. Nierstrasz.—p. 2212.
Examination and Treatment with Gradually Increasing Galvanic Currents in Muscular Paralysis Caused by Peripheral Nerve Injuries. B. G. Ziedses des Plantes.—p. 2224.
Familial Hereditary Epistaxis. C. G. Vervloet.—p. 2232.
Acute Venous Stasis in One Arm. J. L. A. Peutz.—p. 2236.

Acute Hematogenic Osteomyelitis.—At Nierstrasz's clinic in Groningen, the treatment of acute osteomyelitis was usually limited to incision of the subperiosteal abscess. He reviews a material of 143 cases of acute hematogenous osteomyelitis which were treated at his clinic in the course of the last ten years. This review reveals the advantages of the conservative ~~treatment during~~ the acute stage. The author classifies as

acute all cases in which the patients had not been ill more than three weeks before hospitalization. Statistical and clinical evidence as well as theoretical considerations prove that the incision of the subperiosteal abscess is the best method of treatment and far superior to trepanation of the bone marrow with trephine and chisel. The mortality rate in the author's material was 17.4 per cent. In remarks about the prognosis he says that it is unfavorable in the cases in which the temperature is around 40 C. (104 F.) before the operation; in those in which it is less than 39 C. (102.2 F.) it is comparatively favorable. In children and particularly in nurslings the prognosis is much less favorable than in patients of the puberal age.

83: 2421-2576 (May 27) 1939. Partial Index

Gestosis, Chronic Disease of Kidney and Detachment of Placenta in Pregnant Women with Diabetes Mellitus. E. Tonkes.—p. 2430.
Congenital Skin Defects Due to a Form of Epidermolysis Bullosa. J. R. Prakken.—p. 2440.
Kögl and Ercleben's Theory on Tumors. H. T. Deelman.—p. 2446.
Otogenic Tetany. J. van der Hoeden and F. L. J. Jordan.—p. 2449.
Surgical Fixation of Ankle Joint in Tuberculosis. M. H. P. P. van Haeff.—p. 2454.
*Vacation Camps for Children and Tuberculosis. J. W. Schmitz and J. Bos.—p. 2456.

Vacation Camps for Children and Tuberculosis.—Schmitz and Bos stress the necessity of thorough examination of children who are to be sent to vacation camps. In the course of such examinations it was discovered that among them there were a considerable number who coughed. In some of these the general condition was unfavorable and it was decided to search for tuberculosis. Acute tuberculous pulmonary infiltrates were discovered in several and it was now decided that all children should be examined for the possible existence of active tuberculosis. During the three years from July 1935 to July 1938, 4,476 children who were registered for vacation camps were examined with the Pirquet test. Approximately 18 per cent gave positive reactions. These were then subjected to x-ray examination and in twenty-two of them an active tuberculous process was detected in the lungs. Thus approximately 0.5 per cent of the total number of children (4,476) had an active form of tuberculosis. In the majority of these children it had not been known that tuberculosis existed.

Acta Chirurgica Scandinavica, Stockholm

83: 365-454 (April 14) 1939

*Preoperative and Postoperative Fluid Treatment in Pyloric Stenosis. J. Clausen and A. Ringsted.—p. 365.
Treatment of Supracondylar Fractures of Humerus by Reduction Followed by Fixation in Plaster-Splint. R. Brandberg.—p. 400.
Treatment of Postoperative Tetany. E. Åkerberg.—p. 413.
Dystrophy of Ureteral Orifices. K. Johanning.—p. 439.

Fluid Treatment of Pyloric Stenosis.—Clausen and Ringsted investigated in six cases of pyloric obstruction the chlorine metabolism and the renal function during the dehydrated state, during the preoperative treatment with saline solution and, as far as possible, during the postoperative period. They found that dehydration and loss of chlorine may reach extremely severe degrees in cases of pyloric obstruction. In some cases dehydration and chloropenia may cause a lowering of the renal function. For the complete restoration of the normal water content it is often necessary to administer considerable quantities of sodium chloride. In some instances more than 10 liters of saline solution is needed. The isolated examination of either the diuresis, the chlorine content of the serum or the urine provides no safe criterion of the state of hydration. Determination of the chlorine balance is likewise unsuitable for the estimation of rehydration, because the intake and the elimination do not tally at the time when rehydration has been established. The authors found that the simultaneous determination of the chlorine concentration in the serum and of the chlorine concentration of the twenty-four hour urine afforded the best indication of the degree of rehydration of the body. In patients who, as the result of prolonged pyloric obstruction, have become greatly undernourished and dehydrated, these determinations must be supplemented with analyses of the plasma protein before rehydration with saline solution, in order to prevent the risk of development of a hypoproteinemic edema. In patients with hypoproteinemia, transfusion of blood, if necessary several times, must be resorted to during the preoperative period in order to raise the serum protein concentration and thus make rehydration possible. The preoperative treatment with saline solution, if possible, should be supplemented by the administration of dextrose, at any rate during the last days preceding the operation. Isotonic solution of dextrose should be given after the operation to compensate for the total physiologic loss of fluid, and isotonic saline solution should be given after operation to replace the nonphysiologic losses of fluid and to continue rehydration, if the patient has not been rehydrated before the operation.

Nordisk Medicin, Helsingfors

2: 1303-1370 (May 6) 1939

Norsk Magasin for Lægevidenskapen

Value of Helth's Iridencleisis Antiglaucomatosa: After-Examination of 193 Iridencleises in Chronic Glaucoma in from Six to Two Hundred and Eighty Months after Operation. H. A. Gjessing.—p. 1321.
*Erythroplasia. E. Poppe.—p. 1326.
Prontosil Intoxication. K. Motzfeldt.—p. 1327.

Erythroplasia.—Poppe reports a case of erythroplasia on the dorsal side of the glans penis and the adjacent part of the prepuce treated by radium in a prosthesis. One and a half years after discharge there was no sign of recurrence. He says that erythroplasia so called by Queyrat to designate the color of the efflorescence, the infiltrations of the tissue and the likeness to leukoplakia, although the latter does not show malignant degeneration with the same regularity, is a rare form of precancerous disorder. The clinical picture is characteristic enough so that diagnosis should not be difficult if the disease is known. If erythroplasia is suspected, a biopsy is called for. From the start erythroplasia should be treated as cancer, since cases not treated radically show malignant proliferation with formation of mestastasizing spinocellular carcinomas.

2: 1371-1466 (May 13) 1939

Hospitalstidende

*Investigations on Effect of Sulfanilamide in Erysipelas (200 Cases Treated). B. C. Christensen.—p. 1379.

Effect of Sulfanilamide on Erysipelas.—Christensen compares the 200 cases of erysipelas from Blegdam Hospital from July 1937 through 1938, all treated with sulfanilamide, with the series of 100 cases, identical on admission, from the period just before the introduction of the chemotherapy of this disease. In the cases treated with sulfanilamide the febrile period was reduced several days. While no safe conclusion can be drawn, he says, as to the effect of sulfanilamide on the complications in erysipelas, abscess of the eyelid occurred only once in the 200 treated cases, five times in the 100 cases. The death rate in the cases treated with the drug was 1 per cent, in the other cases 9 per cent. The dosage used was from 0.9 to 2.7 Gm. daily for from three to five successive days.

2: 1467-1542 (May 20) 1939

Norsk Magasin for Lægevidenskapen

Clinical Experiences with Sulfanilamide Preparations on Basis of 220 Cases. W. Loennechen Jr.—p. 1485.
Somatologic and Hygienic Study among Norwegian Students: I. Somatometric and Functional Values in Men in Different Height and Age Groups and Mutual Correlations. O. J. Broch.—p. 1493.
Acute Infectious Diseases and Housing Conditions. A. Strøm.—p. 1499.
*Ascorbic Acid Content of Germinating Cereals. H. Natvig.—p. 1502.
Thrombopenic Purpura after Sedormid. K. Motzfeldt.—p. 1504.
Postvaccinal Encephalitis. P. M. Holst.—p. 1505.

Ascorbic Acid Content in Germinating Cereals.—Natvig found no ascorbic acid in dry cereals or cereals soaked for twenty-four hours, but after germination for twenty-four hours at 18 C. about 14 mg. per hundred cubic centimeters of ascorbic acid was established, which increased to about 40 mg. after four days' germination, when a bad odor appeared. He thinks that, since germinating cereals contain more ascorbic acid than do old potatoes, they should be used more in northern Norway, especially in the winter and spring months, when potatoes and few other sources of vitamin C are available.